Railway Age

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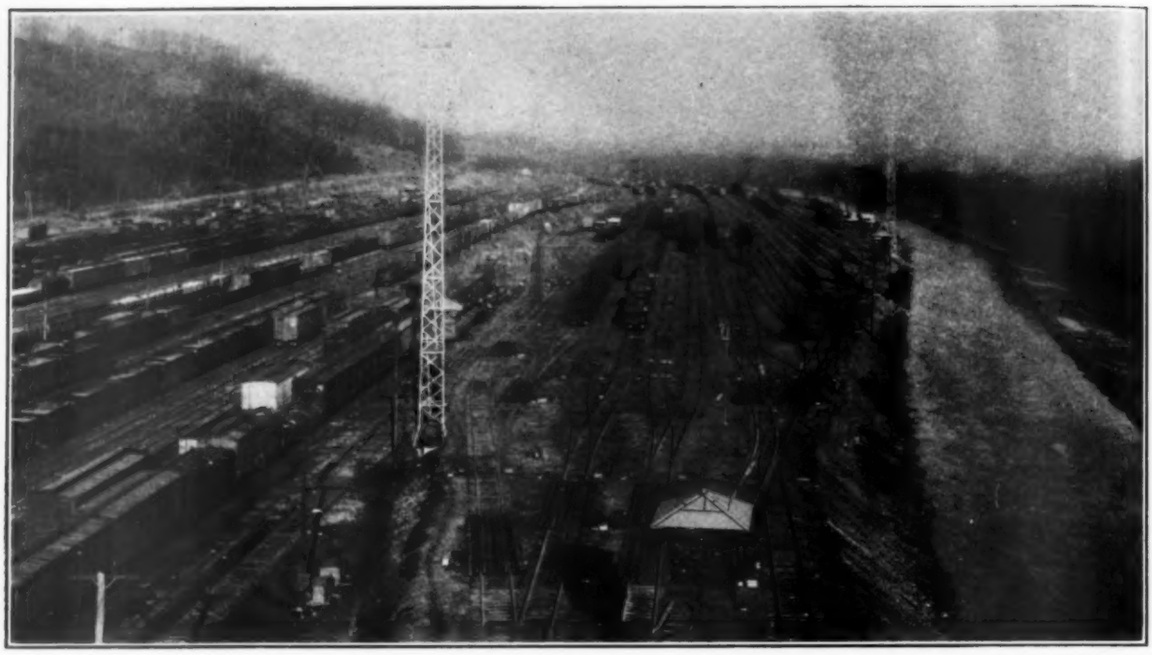
Every Day



Every Night

District Offices

NEW YORK MONTREAL CHICAGO ST. LOUIS SAN FRANCISC

Railway Age

Vol. 85, No. 21 November 24, 1928

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Standards and Purchasing

THERE are few persons responsibly associated with large scale buying and supplying who are not agreed upon the importance of employing standards in their negotiations in order to provide the foundation for competition by sellers and the means by which uniformity can be secured in the quality of the product. But the importance of employing standards that are uniform and of adhering to them in practice, does not seem to be so well recognized. A road will go to expense and trouble to establish a standard to govern the manufacture of a commodity in the open market which will embody some deviation from that adopted by some other road, often just enough to avoid interchangeability, with the result that competition is thereby restricted to the few producers who have templets ready, or the cost is higher than it would be if mass production could be secured. To establish a standard, moreover, which purports to be the going standard in a particular branch of business and then fail to adhere to that standard in purchasing, is as destructive of economy in buying as a failure to adopt a uniform standard. Railroads, it seems, have been particularly remiss in recognizing this in their lumber buying, although the principle applies equally to other lines of purchasing. It is often recited how a lumber buyer will advertise for prices on a certain grade of lumber and award the business to the lowest bidder, and subsequently learn that if the higher bidders had known, when offering prices, that the buyer would actually accept a lower grade lumber than specified, that grade could have been secured at a much lower price even than was offered by the low bidder who had reaped the advantage of his knowledge of the buyer's practice. Thus it frequently develops in the railway business that competition is not what it could be and prices are not what they should be, simply because the railroads themselves fail to adopt or to follow fundamental principles. The value of standards to efficient purchasing has been proved beyond a doubt but it still remains to be proved that a buyer who does not support the practices which standardization calls for can be depended upon to get the best end of the bargain.

Where Cost Accounting Would Be Helpful

THE amount of money that it costs the American taxpayers to regulate the railroads through the agency of the Interstate Commerce Commission is readily ascertainable, but complete information covering the expenditures of the state commissions for this purpose is not available. Would not definitive information on the entire cost of regulation be interesting and useful? Intensive regulation of railroads, going into the minutiae of their operations, is a rather recent development, and for that reason must still be regarded as something of an experiment. If it is still an experiment, then it deserves the closest scrutiny in all its details, and one of the most important of these details is cost. The costs of regulation are of two kinds—direct (paid for out of the pockets of the taxpayers) and indirect (paid for by railroad owners and their patrons). The direct costs, of course, are the operating expenses of the various regulatory bodies. The indirect costs are those imposed upon the railroads and their patrons, by compliance with regulatory orders—such as, for instance, the cost of collecting evidence and presenting it before the various commissions on matters of trivial importance. The collection of complete cost data on regulation and pro-rating it on a ton-mile or passenger-mile basis might possibly disclose that a rather important percentage of the total charges for transportation to railroad patrons arises not from transportation costs themselves but from regulation. On the other hand such a cost study might disclose that regulation is comparatively inexpensive when compared to its benefits. Costs of regulation are controllable—at least to a far greater extent than are the costs of transportation *per se*. They can be arbitrarily increased or reduced to any desired figure by legislative fiat. The advantage, then, of making some effort to perfect a cost accounting plan for regulation before attempting to prepare one covering transportation costs seems manifest. This appears so particularly because the elements entering into transportation costs are only to a small degree controllable; and figures reflecting such costs are, therefore, of small significance as a basis for policy. Where costs can be placed under complete control, however, as is the case with those of regulation, there is every reason to go to some trouble and expense to determine and allocate them.

Putting the Burden Where It Belongs

EARLY efforts to solve the grade crossing problem often proceeded on the assumption that the railroads should bear the entire expense and that they could be forced by public authority to do so. But times have changed. The principle that the public shares the responsibility for the conditions calling for grade separation and must rightfully bear a part of the cost, is now definitely established. An elaboration of this principle was suggested by the Committee on Safety of Railroad Operation of the National Association of Railroad and Utilities Commissioners in the report it presented before the convention at New Orleans, reported elsewhere in this issue. The significant statement is as follows: "Since the advent of the automobile in ever-increasing numbers, to the extent that this transportation agency has now become a serious competitor with steam railroad carriers, the owner of the motor vehicle, in all

equity, becomes a unit of assessment for his proportionate share of the cost of separating or eliminating or protecting grade crossings." Unfortunately, the report is not equally direct in suggesting the means by which such "assessment" should be made, other than to propose that federal and state appropriations be made for elimination of grade crossings "so that the entire burden of cost may not rest upon the carriers and the local municipalities within whose limits the particular grade crossing may exist." To make such appropriations from funds collected through general taxation would surely not comprise a direct "assessment" upon the owner of the motor vehicle. It is unfortunate that the committee did not go one step further and meet the issue squarely with a proposal that such appropriations be made from funds collected through motor vehicle license fees, the gasoline tax or some other form of taxation that places the burden directly on those who profit most from expenditures for grade separation.

Crossing Protection and Local Requirements

PRIOR to the advent of the automobile the protection of highway grade crossings with railways was confined primarily to warning signs indicating the location of the crossing, for the drivers of horse-drawn vehicles had ample time and opportunity to look for approaching trains except at points where buildings, trees or high banks cut off the view, at which places warning bells or watchmen were commonly employed to indicate when trains were approaching. Improved highways and fast-moving automobiles have created such that many drivers can not or at least do not take sufficient time to look for approaching trains, nor do they hear a bell. In addition to the standard warning sign at the crossing, approach warning signs have, therefore, become standard in many states.

To meet the new conditions, still further protection is being provided by the railroads at many crossings with heavily traveled streets and highways. This has developed along two distinct lines. In one group are the crossing gates, which in the earlier days were hand-operated; later pneumatic gates were developed so that one man in a tower could operate several sets. More recently electrically-operated gates have come into use, which can be controlled from any remote point at which the operator can have a clear view of the crossing and approaching trains, or automatically by the trains themselves through track circuits. The other method of protection is illustrated by the Signal Section standard automatic signals of either the flashing-light or the wig-wag type, which may be controlled automatically by approaching trains on track circuits or manually by an operator in a tower centrally located in a territory including a number of crossings.

At crossings where automobile drivers have an open view of the tracks and approaching trains no protection is required other than signs to designate the location of the tracks. Where further protection is to be provided by a railroad today the choice is, therefore, between gates and the flashing-light or wig-wag. The decision must be based on a study of local conditions, including the volume and speed of highway traffic, and the number, speed and length of trains. On lines of light traffic operating across streets at reduced speed the flashing-light signal or the wig-wag should be adequate. Likewise, such protection should suffice for the average crossing in the open country, even though trains may be operated at high speeds. However, in closely built-up districts, and at points where the view is across streets or highways carrying heavy traffic, it seems to be the opinion of the railroads that some definite barrier such as a crossing gate is required, not only to stop traffic but also to prevent reckless drivers from attempting to cross the track ahead of a train after actually seeing it approaching.

The maintenance and operation of gates has been expensive in comparison with other methods of protection. Although it would seem that for certain locations no other protection is adequate. In an effort to reduce the cost of maintaining and operating gates, the Illinois Central has employed low-pressure pneumatic motor-operated gates, which are controlled remotely, thus reducing the number of men required. Also, the use of electrically-operated gates, controlled remotely from a central tower, with illuminated track diagrams to indicate the position of trains, presents possibilities for reducing operating costs. While the use of electrically-operated gates, controlled automatically is being tested extensively.

Formerly gates were installed at many crossings where flashing lights or wig-wags would now be adequate; on the other hand, wig-wags or flashing lights are now being installed at crossings where gates are needed. The decision to use either the gates or the signals cannot be governed by any hard and fast rule, but depends on local conditions.

Taxes, Prices, Railway Rates and the Farm Problem

GOVERNMENT regulation of certain industries is doubtless desirable and even necessary, but for one reason in particular it is a constant menace to the welfare and progress of any industry to which it is applied. This reason is that the existence of the power and machinery of regulation presents to the public a constant temptation to use them in attempts to solve problems for whose existence the industry to which the regulation is applied is in no way responsible.

It is the proud boast of the American people that their production, commerce, wealth and general well-being have for many years increased more and are now on a higher plane than those of any other nation that ever existed. Railroad transporation has played a more important part in this than in any other country. It can hardly be, therefore, that the service rendered and the rates charged by our railways ever actually have been, except, perhaps for short periods, inimical to the nation's economic progress. The indisputable facts of history show that over periods of years freight rates in this country always have declined more or advanced less than the prices of commodities in general. The average freight rate per ton per mile of the railways is now less than 15 per cent higher than it was 40 years ago, while the average wholesale price of commodities is about 100 per cent higher than it was then. And yet during the last half century there has hardly been a time when there has not been strong agitation for government action of one

or more kinds to cause reductions or prevent advances in railway rates upon the ground that existing rates were, or proposed freight rates would be, an intolerable burden to some industry or all industries.

The Granger movement in the seventies was largely an agitation for regulation to reduce freight rates. The same thing was true of the Populist movement in the nineties. When the railways, in 1910, in the midst of a period of advancing wages and commodity prices, sought general advances in rates, industrial and commercial interests, which, not being subject to regulation, were advancing their prices, immediately invoked and secured legislation increasing the power of regulation to prevent the railways from increasing their rates. And so now we hear constantly advanced the claim that the industry and commerce of the country, and especially the agricultural industry, need relief from the "burden" of freight rates.

It is proposed that relief for agriculture, especially, shall be secured in two ways. Inland waterways are to be developed and the government is to operate barge lines on them and make rates lower than the railways can afford to make. This it is claimed, will directly enable the farmers to get higher prices for all their products that are exported, and indirectly for all those that are not exported. In addition, under the Hoch-Smith resolution railway rates upon farm products are to be made relatively lower than upon other commodities.

Truth About the Farm Problem

This dual programme for relieving the farmer by using the power of government, first, to divert traffic from the railways, and secondly, to make especially low railway rates upon farm products, obviously is based upon the time-honored assumption that if there is any economic condition in the country that is unsatisfactory the freight rates of the railways must be one of the principal causes of it, and that, therefore, resort for a remedy should be had to the exercise of the government's supposed or real power to reduce the cost of freight transportation. It is, however, significant that nobody ever yet actually has tried to prove that the recent farm problem has been due in any considerable measure to freight rates, or that its solution would be perceptibly advanced by any changes in freight rates, whether by rail or water, that would be practicable. To every real student of the subject the reason for this is obvious. All the facts tend to prove that freight rates have been hardly a factor in creating the farm problem and that no reasonable changes in them would have any perceptible tendency to help solve it.

If evidence of this, in addition to that already available, were needed it is afforded by a study recently made by the Bureau of Agricultural Economics of the United States Department of Agriculture. The study is entitled "Index Numbers of Prices Farmers Pay for Commodities Purchased." This title does not sound interesting, but the document will well repay examination by anybody who wants to understand the farm problem. It divides the commodities purchased by the farmers into two broad classes, those bought for the maintenance of their families, and those bought for carrying on production on the farm. Comparisons are made between average prices in the five-year period 1910-14 and in subsequent years down to June 15, 1928. It is shown that on the average the prices received by the farmers for their products were 45 per cent higher last June than in the five-year prewar period mentioned. The prices they had to pay for commodities used in maintaining their families averaged 62 per cent higher and the prices they had to pay for commodities used in production averaged 48 per cent higher. The average wage of hired farm labor had increased 70 per cent and the taxes on farm property had increased 158 per cent.

The increase meantime in the average freight rate on farm products was no greater, and probably was less than on commodities in general. The increase in the average freight rate on all commodities in the entire country was less than 46 per cent. Most farm products are produced in western territory, and it is in that territory that there is and always has been the most complaint about freight rates. The average freight rate of the western lines is now only 28 per cent higher than in the five-year period 1910-14.

Let us now convert these figures into statistics indicating the present as compared with the prewar purchasing power of a given amount of farm products. According to the statistics of the Bureau of Agricultural Economics the farmer finds that, as compared with his prewar dollar, his present dollar, when he goes to pay his taxes, is worth only 56 cents. He must pay $1.00 for labor which before the war cost him only 85 cents. In buying commodities for the maintenance of his family his dollar is worth, relatively speaking, only 88 cents, and in buying commodities to carry on production it is worth 98 cents. In buying freight transportation from the railways of the United States as a whole it is worth 99 cents and in buying freight transportation from the western railways alone it is worth $1.12.

Farm Taxes Increased 66½ Per Cent Since 1920

There are no statistics given in the study by the Bureau of Agriculture Economics which are so significant and striking as those regarding the changes that have occurred in the value and taxation of farm property. They show that the value per acre of farm real estate in 1920 was 69 per cent greater than in the years 1912-14, and the taxes on farm property were 55 per cent higher than in 1914. In 1927, however, the value per acre of farm real estate had declined until it was only 19 per cent higher than in 1912-14, whereas the taxes on farm property had increased until they were 158 per cent higher than in 1914. Ever since 1920 there has been constant talk about the "farm problem" and constant pressure upon the government, and from the government upon the railways, for reductions in freight rates as a means of solving it. Meanwhile freight rates have been reduced an average of 15 per cent and taxes on farm property, which are assessed and collected by the various governments, have been increased 66½ per cent.

The burden of increased taxes is relatively much the heaviest and the burden of increased freight rates the lightest, the farmer has to bear, and yet it is proposed to "relieve" him by further increasing taxes and reducing railway rates. The high cost of highway construction probably has been the principal cause of the increase in the farmer's taxes, but nobody has seriously proposed a reduction of expenditures on highways as a means of farm relief. Whatever other effects it may have the extensive developments of inland waterways will also tend to increase taxes and directly or indirectly the farmer will have to pay his share of them. The cost of farm labor is 70 per cent higher than before the war, mainly because the farmer has to compete for labor with other industries in which wages have been largely advanced, but nobody has yet proposed legislation to enable the farmer to get labor cheaper as a measure of farm relief. His clothing costs him 79 per cent more

than before the war; furniture and furnishings 108 per cent more; machinery 57 per cent more; building materials about 65 per cent more; seed about 81 per cent more. No proposals are seriously made for government regulation to reduce the prices of these commodities to the farmer, although most of them have increased more in proportion than the freight rates which it is proposed to reduce. Of course, the explanation is that the wages and commodity prices the farmer must pay cannot be regulated, while freight rates can be.

Misusing Power of Regulation

In recent addresses Charles M. Schwab has said that the average return being earned upon capital invested in the iron and steel industry is only about 5 per cent and has urged cooperation by the government with this industry to enable it to earn satisfactory returns. Unquestionably the iron and steel industry is being conducted on too narrow a margin of profit. In only one year since the railways were returned to private operation, however, have they earned as much as 5 per cent, and they have averaged only 4.2 per cent during this entire period. If an industry which, without regulation, is earning 5 per cent should have government cooperation to enable it to earn more, why should another industry which, under regulation, is earning much less be called upon to help other industries at the cost of still further reduction of the return being earned by it? The answer is that it is subject to regulation and that there is constant temptation to use the power of regulation without much regard for sound economic principles, justice, or the ultimate public welfare.

As long as regulation of railways prevails the tendency to misuse the power of regulation will exist and have to be resisted. It has not been very successfully resisted in the past and it will have to be more successfully resisted in future if private ownership and management of railroads are to be maintained. The only effective means of resisting it will be the education of public authorities, business men and the public regarding transportation economics and problems and the inevitable results of using regulation of railways to remedy conditions and solve problems which railway regulation cannot attempt to solve without crippling or ruining the railroad industry. This work of education will be hard and interminable, but experience clearly shows that if it is not done the railroad industry will be ruined by those who see in railway regulation a means of solving a large part of the economic problems which arise and who largely or wholly disregard the effects that their methods of solution will have upon the railroads.

The Interest of Freight Men in Motor Transport

THE increase in interest in motor transport during recent months on the part of railroad men has been tremendous. Several facts show this—possibly the most significant being an increase of 100 per cent in the attendance at the Detroit meeting of the Motor Transport Division in October, as compared with the June meeting of the same division in Atlantic City. It is to be noted that this increased interest is largely manifested by passenger officers. Figures regarding recent tendencies in passenger traffic, as published in an editorial which appeared in the *Railway Age* of November 3, page 863, give adequate reason for the heightened interest of passenger men in the problems of motor transport. The fact that many railroads are sustaining actual out-of-pocket losses from their passenger service apparently explains the determination of officers in this department to take whatever steps are necessary to correct this situation.

At the same time, the importance of motor truck competition and the possibilities of applying this vehicle to railroad service should not be overlooked. Although passenger service may not be profitable, whereas freight business is, nevertheless it may be that net earnings of the entire railroad are quite as much affected by motor truck competition as they are by that of highway passenger vehicles. Similarly, even though freight service is remunerative on the present basis, the application of motor trucks to this service might possibly have a hardly less important effect on total net earnings than the utilization of motor coaches by the passenger department. In other words, the great increase in interest in the passenger phase of motor transport is gratifying and understandable, but it does not follow that the motor truck side of the question should receive proportionately less attention.

A five-point reduction in costs of performing passenger service in 1927 from the actual expenses in that year would have increased net operating income by $65,794,000. The same percentage reduction in the cost of performing freight service in the same year would have increased net operating income by $187,547,000. Similarly an increase of 5 per cent in passenger revenues would have amounted to $67,279,000, whereas the same percentage increase in freight revenues would have meant $239,450,000 or more than 3½ times as much.

There is in every question of policy an opportune time for arriving at a decision and acting upon it. Premature action is costly, but not more so than action too long delayed. No one can question the statement that entrance into the motor coach field was easier for the roads which pioneered—such as the larger New England lines and the Great Northern for instance—than for lines now seeking to engage in the business. In the three years which have passed independent operations have been started, have grown, have emerged into larger companies and entrenched themselves. New entrants in the field thus find many of the more remunerative routes occupied by operators who can be dislodged only by purchase at high prices.

As yet motor truck transportation, while extensive, has not evolved into the stage of operation by such large organizations as now dominate motor coach transportation. There is no reason, however, to assume that such development may not be expected. The railroads might consider whether experience with the development of motor coach transportation does not point to a probable similar development in motor truck transportation. Certainly it is a field which railroads can now enter with little difficulty, if it is worth entering. And now is the time to find out what ought to be done about it.

Freight traffic departments, it would appear, can afford to study motor transport just as intensively as passenger departments are now studying it. As indicated above, the great increase in the attendance at the Detroit meeting of the Motor Transport Division was due in large part to an influx of passenger traffic officers. Does not the situation warrant a similar increase in attendance at the next meeting at St. Louis in February, an increase due to a greater realization by freight traffic men that this is their problem too?

High Grade Railway Lumber Wastefully Piled

Factors in the Economical Buying of Lumber

Lumber experts advise inspection for seasoning defects and better care in yards and site of use to prevent waste

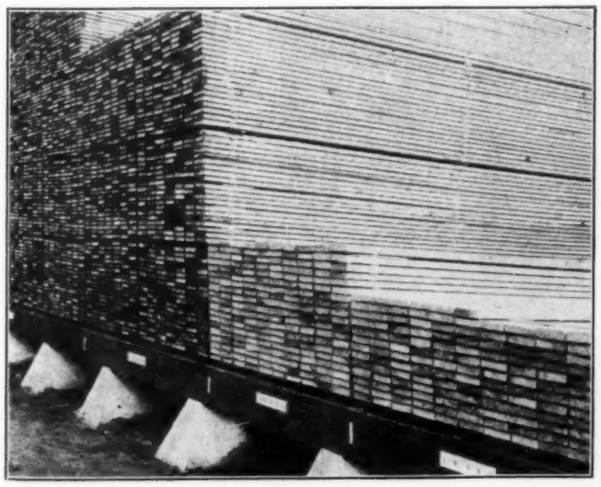
Part II*

WHEN lumber deliveries are received, it is customary to check the tally or measurement and inspect for quality, but the condition of seasoning is not always given sufficient attention. To discover poorly seasoned material and prevent its use is more satisfactory than to make complaints regarding it after it is installed and shrinkage troubles develop.

It is difficult to form close judgment of the dryness of a board by looking at it. The dryness test is definite. If that method is not used, the next best step is to secure the judgment of an expert carpenter, who by whittling the wood or passing a plane over it can, from his years of experience, form a fair idea of its seasoning, as the working qualities vary somewhat with the dryness.

It is claimed that when the boards ring clear when struck, or when slivers break without clinging, the stock may be taken from the kiln as sufficiently dry. The brittleness of slivers indicates surface dryness only, which may exist when the center is not yet dry enough; or the average between surface and center may be dry enough and become equalized by rough storage for a week or ten days, when the stock will plane better and the outside slivers will not be so brittle. Resonance is a useful test, but requires skill to form even approximate judgment. It is also a test for the soundness—wood in which decay has begun giving a dull sound. Such tests are useful only when it is not practical to make the standard moisture test.

*Continued from a report of the Consumers Committee on the Seasoning, Handling and Care of Lumber of the National Committee on Wood Utilization, the first part of which was published in the *Railway Age* of Nov. 17.



Railway Lumber Correctly Piled for Seasoning. Note Well Ventilated Foundation and Spacing of Boards

Must Guard Against Defects

The lumber inspector and user should be able to recognize defects caused by seasoning and to guard against them in his purchasing and use. Most seasoning defects result from shrinkage in drying, some of them from unequal shrinkage. Surface checks, end checks and splits, and planer splitting are allowed to an extent in common boards but are degrade defects in upper grades. The board may be saved from degrading by sawing off the split or defective end, losing the footage. A board which is cupped (warped crosswise)

may split when flattened out under the planer rolls. More of this occurs when the lumber comes direct from the dry-kiln. If stored a few days before planing, it becomes less brittle. Knots occur chiefly in common lumber and much common lumber is degraded because the knots check or loosen in seasoning. Many small mills specialize in the manufacture of small-dimension sizes, because these are easily sawn and their timber does not produce higher-grade material. Much of this stock comes to market end-warped and twisted, a condition which should be guarded against.

Stain is another seasoning defect, not allowed in select grades intended for natural finish, but which usually is not a defect in lumber intended to be painted, though it is not liked by buyers and reduces the salability of the lumber, even in the grades where the rules admit it. There are brown stains in several woods, chiefly western yellow pine, sugar pine, and southern pines. Some of these stains are caused by fungi and others by chemical action.

The most common stain is blue stain, which attacks a number of species in both hardwoods and softwoods, in most manufacturing sections, though most general and severe in the South. It is caused by a mold fungus which feeds upon the cell contents. It damages the wood structure only slightly by puncturing the cells to reach the interior, differing from decay fungi which break down and feed upon the wood structure itself. The conditions of moisture and warmth which favor blue stain development are, however, also favorable to the decay fungi. Kiln-drying is the best preventive, usually killing any existing infection and preventing further development. Indications of stain found in kiln-dried stock are developed prior to kiln-drying, although stain reinfection may appear after kiln drying if the wood again becomes sufficiently moist. It may develop extensively in lumber piled for air-drying, especially in damp warm weather, and damage is reduced to some extent by open piling, especially near the bottom of the pile. The lumber user should use stained lumber wherever it will serve, in the interest of proper economy and utilization.

Improper Seasoning Cuts Value

Seasoning defects developing inside the board are casehardening, honeycomb, and collapse, and they may exist without affecting the appearance and so, of course, without affecting the grade, and be exposed later in working. Casehardening is produced by seasoning and shrinkage of the outside surface in either air-drying or kiln-drying while the interior is still green. The shrinkage stress is resisted by the core and is relieved by surface checking; or the outer wood may set in unshrunken form without checking, and later, when the center dries, its own shrinkage may be resisted by the shell. In that case it may develop interior checks, and these may open enough and be sufficiently numerous to produce the condition called "honeycombing." Both casehardening and honeycombing are more pronounced in hardwoods. In softwoods the chief result is a stress difference between the interior and exterior, so that if such a board is resawed, the two pieces will immediately warp toward the inner side. Even dressing a little more on one side than the other will cause warping toward that side. In softwoods, this stress usually disappears within two or three weeks but, if severe, may be more permanent. It is not important except where stock is worked soon after seasoning.

"Sticker" damage occurs in either air-drying or kiln-drying, though mostly in air-drying. Lumber usually shows marks of the stickers except on the side that has been placed after seasoning; and checking and sometimes decay may be found in the sticker marks. If a board has numerous marks along its length, it has itself been used as a sticker or crosser in piles self-stuck; that is, by using some of the boards themselves instead of special narrow stickers. Boards used for stickers have about three times as much degrade as the piles average, and the other boards are also damaged where the sticker boards cross them.

Method of Storage Important

Where users carry quantities of lumber for a considerable period for seasoning or storage, the principles of good piling should be observed if the economies of careful purchasing would not be lost. In this connection, the foundation is important.

The common type of good lumber foundation for air seasoning green lumber consists of three or four heavy timbers running lengthwise of the pile and supported on concrete piers. A solid wall should not be used because of its interference with air circulation. It is best that the foundation timbers be of durable species or be creosoted. Old railroad iron is sometimes used when available instead of wooden timbers. Upon these, cross timbers are laid on which the first layer of lumber is piled. The face should not be over 4 inches wide. There should be as many of these as there are sticker courses in the pile, and they should be laid loosely so that they can be moved to accommodate piling different lengths of lumber. If not creosoted, a dry scantling or strip is usually laid on top of each cross timber under the first course of lumber, so any stain or decay organisms in the cross timbers will not come in direct contact with the lumber.

The foundation can be made level with the desired slant of lumber from front to back of the pile, secured by increasing the sticker thickness toward the front in the bottom layers until the desired pitch of about 1 foot in 12 is secured.

Stickers or crossers should be placed over each layer of lumber, and each sticker should rest directly over the one below, or the weight of the lumber will bend the boards. The required number of stickers in a course varies. If the species inclines to warp endwise and cup, they may be laid only 15 to 18 in. apart to hold the lumber firmly, and on straight-grained softwoods there need be only three, but at least three are desirable to hold the lumber straight. Some advocate only three stickers for shop grades of stock 10 to 16 ft. long, so that if sticker stain or damage results, longer cuttings can be secured between the sticker marks. If special stickers are used, they are usually about 1 in. by 4 in. in cross section for softwoods. Narrower stickers would dent the lumber by the weight of high outdoor piles, but they are preferred in dry-kiln loads where the height and weight are moderate; and because wider stickers retard the drying where they cross the boards, and cause more checking, stain, and sometimes decay under the stickers. For hardwoods, narrower yard stickers are often used.

Softwoods in moderate widths are often self-stuck, especially in the common grades; that is, the boards being piled are also used for stickers. Sometimes in the West two widths are piled together, so that the narrower can be used for stickers. Ten years ago, practically all softwood lumber was self-stuck, but that is by no means true at present. There is the ad-

vantage in avoiding the cost of providing stickers, but the saving may be overbalanced by greater seasoning damage from the wider stickers and by slower seasoning because their faces are exposed to air only at the air spacings between the boards in the layers. In the far West, 2 in. by 4 in. scantlings are sometimes used as stickers for other stock, after which they are dressed to remove the sticker marks and used to fill orders.

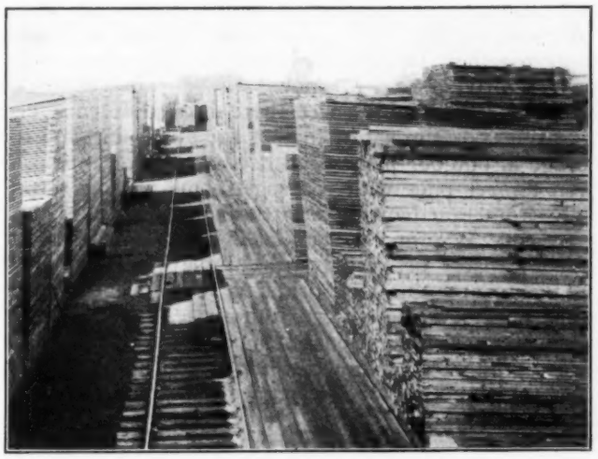
For some species of softwoods the end stickers are placed at the ends of the pile, projecting an inch or so to shield the ends of the lumber from the sun, or sometimes projecting about one-eighth inch beyond the boards below and the boards above placed flush with the sticker, thus providing the forward pitch which it is customary to provide on the front of the pile as an added protection from rain. If the lumber varies slightly in length, the rear of the pile will be uneven, and the stickers can not be set clear back. Because of this some recommend that they be placed about 2½ feet in at the rear. On hardwoods the stickers are often kept in 3 in. or more from the ends. One authority claims that in northern hardwoods, with the stickers full out, decay will occur from rain dampness if the lumber is kept in the pile very long after it is seasoned.

Lumber piles can be carried to a height of 18 to 20 ft. by hand piling and much higher where lumber stackers are used. Where the alleys have railroad tracks, a car with an elevated platform is sometimes used and is of much assistance in high piling or unpiling, being spotted conveniently to the pile.

For the roof, crossers are preferably laid higher in front to give added slant, and projecting two or three feet at either side; and two layers of roof boards are laid, with the joints broken and with the first length shifted down and the top length up, to overhang the ends of the pile as well as the sides. Crossers are put on top to hold the roof boards against the wind. Piles can be self-roofed with the same lumber, but the roof boards suffer much degrade.

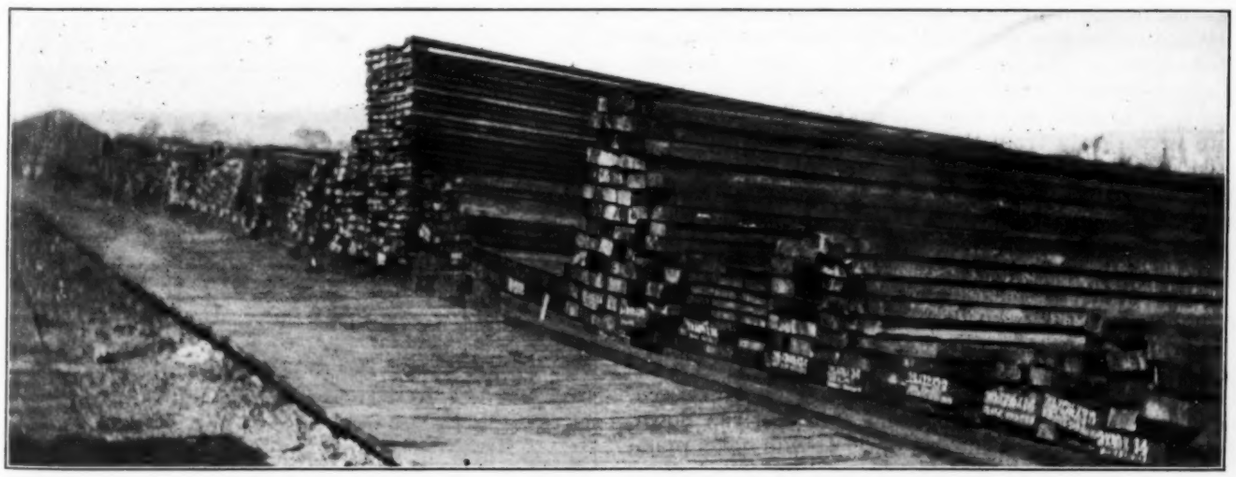
Softwood lumber is usually separated by lengths, thicknesses, and widths, but often only partial separation is accomplished in hardwoods. Whenever lumber is piled in mixed lengths, the unsupported longer ends in the rear are damaged by too rapid seasoning, because of the greater exposure and added warp and twist.

Since 2 in. by 4 in. scantlings often warp edgewise, as well as sidewise, they are often preferably edge-piled for seasoning. This holds down edge warp but sometimes increases warp in the other direction. In what is known as box piling, the pile is made the length of the longest lumber, and shorter lengths are piled flush at one end and short at the other with the end supported by an interior sticker; and still shorter lengths are doubled or tripled to make up the pile length. The reduction of degrade in seasoning is worth the added labor in most cases, but it is used more for dry-kiln loads than for yard piling.



Model Conditions in Railway Lumber Yarding. Note Slanting Piles and Air Spacing

After the lumber is dry, it may be stored in a solid pile without stickers, but bulk piling outdoors is practiced rarely except for low grades. In a lumberyard, the main alleys and cross alleys should divide the lumber into blocks in which the lumber piles are arranged like the houses of a city street, with the high end toward the alley. It is also considered well to allow equal space for each pile, so that the spaces between piles shall line up across the yard. Piles are preferably spaced 2 ft. to 4 ft. apart sidewise to facilitate ventilation and should be 4 ft. to 8 ft. apart, or more, at the rear. Piles of lumber are usually arranged endwise to the alley and slanted to run the water toward the other end. Where heavy timbers are piled they are usually placed sidewise to the alley to facilitate handling.



Railway Lumber Piled in a Poor Way to Save the Benefits of Careful Buying

In air-drying, the lumber in the lower middle of the pile requires longer to dry. It may be helped by thorough ventilation under the pile and ample height from ground, by keeping down weed obstructions, and by using thicker stickers or doubled stickers in the lower portion of the pile. A substantial center-ventilating chimney or tunnel is effective.

For storing lumber already air-dried, a piling similar to that for green lumber is favored. Even dry piles need adequate air circulation to dry them out when penetrated by rain. The piles, however, may be placed closer together, because they shelter each other from sun and driving rain or snow.

In one important respect there is a difference between outdoor storage of lumber for air-drying and its storage in outdoor piles when it is soon to go into use. Even lumber piles with roofs get some wetting, especially from rain blowing into the sides and ends; but if the pile is properly ventilated (with stickers and with air spaces between boards in the layer), it dries out again, and this is considered rather beneficial to lumber being seasoned than otherwise, corresponding somewhat to the occasional steamings of the kiln-drying process. Dry weather would cause more damage from too rapid surface drying except for such occasional wettings.

If, however, seasoned lumber becomes wet by rain shortly before use (whether at the job or in a distributor's yard), it may not have time to dry out again and for practical purposes is back in the partly green condition. Exposure to even a short shower is undesirable, although the effect on interior moisture may be less than it would seem, because absorption is slow and more of the water will dry off than penetrates the wood. A continued rainy spell, or water in the crevices of closely piled stock where it can not dry off again, will have greater effect than a slow shower on lumber openly piled and with a proper slant for drainage, even if unroofed. Such wet spots are also conducive to surface-checking. Lumber delivered for immediate use should be piled at least a foot off the ground so it will lie straight. If old timbers are not available, new material can be used in the foundation if raised off the ground by piers of stone or brick. Such piles should have a pitch to drain water and a roof of two layers with joints broken between them. New lumber may suffer somewhat by being used for roof boards, though not severely if the time is short. If the roof is taken down to use lumber from the pile, it should be replaced at night or if a daytime shower begins.

When thoroughly seasoned lumber is put into storage sheds it is usually bulk piled (piled closely) without stickers, because while unseasoned stock will dry very slowly, if so piled, well-seasoned stock will absorb moisture very slowly from the air. When this method is used in piling lumber outdoors, however, storms may drive moisture into the pile, even if roofed, and it will tend to remain there; and capillary action between boards in contact seems to draw in any moisture which may be supplied at the edges.

Where lumber is piled loosely, as where its rapid consumption does not seem to warrant the use of stickers, the pieces are usually square-piled on each other (not lapped) and as there is no bond between the vertical tiers they are tied together by stickers every ten courses. If there is no roof, the rain will run down between the tiers, to the bottom. It will take practically no more space or labor to shift every alternate course sidewise two or three inches, thus staggering the joints. Even while the pile is being used from, whatever two layers are at the top will then form a roof for the material below. Where this does not insure adequate protection from rain, a further improvement consists of spacing the lumber between the pieces for ventilating tunnels. However, this method is usually limited to lumber two inches and thicker, because one inch stock so piled will split when walked on, and the edge support might encourage cupping.

I. C. C. Train Control Requirements

WASHINGTON, D. C.

ASSERTING that there has been a "marked change and let-down in the actual requisites demanded by the (Interstate Commerce) Commission for approval of installations of train-stops or train-control, though there has been no change in its specifications and requirements as set forth in Order 13,313," Charles A. MacHenry, president of the Hudson Train Control Holding Corporation, has filed with the commission a brief in support of a similar statement made during the hearings in connection with the commission's investigation of train-stop, train-control and block signal installations. The brief says the records of the commission referred to adequately establish that:

Approvals of installations have been given to the General Railway Signal Company's device, the Union Switch and Signal Company's device, and the National Safety Appliance Company's device, which do not comply with the requirements of the Commission as set forth in its own Order and Specifications.

Approval has been given to installations of devices which have inherent in the device continued danger of false clear failures.

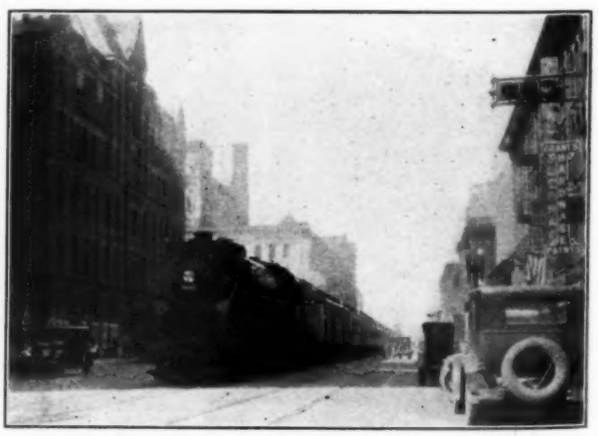
Approval has been given by the Commission to installations which will not function under weather conditions which permit ordinary train movements.

Approval has been given by the Commission where the integrity of safety features of the device depend upon maintenance instead of inherent safety of design and construction.

Insistence upon inherent safety of design and construction has been abandoned.

The hazardous human element in maintenance has been allowed by the Commission to supplant inherent safety of design, fundamental ruggedness of construction, and basic integrity of operation without maintenance.

* * *



On the New York Central at Syracuse, N. Y.

Economic Situation in the Railway Industry*

Nine months' figures show great increase in efficiency—Decline in return on investment

THE Bureau of Railway Economics submits the following summary of transportation conditions and performance of railways of Class I from January 1 to October 1, 1928, consisting of analyses of traffic, revenues and expenses, capital expenditures, purchases of materials and supplies, and principal factors in operating efficiency, as far as figures are available.

Railway Traffic

Revenue freight loadings aggregated 42,917,925 cars during the first 43 weeks of 1928. Until the first week of September, with only five exceptions, the weekly loadings for 1928 ran consistently behind those for 1927. Since that time they have run consistently ahead of 1927.

Net ton-miles show a similar trend. To the end of June they were less month by month than in the same periods of 1927, but the percentage of decrease under the preceding year tended to grow smaller, and in July it turned upward. The aggregate for the nine months is 2.3 per cent below that for the first nine months of 1927, and about the same percentage below the corresponding period of 1926. The following table compares by months the freight traffic of 1928 with that of 1927 and 1926:

Net Ton-Miles
(Railways of Class I)

		Per cent increase or decrease compared with	
	1928 (millions)	*1927 (millions)*	*1926 (millions)*
January	36,269	dec. 7.6	dec. 3.7
February	35,701	dec. 4.2	inc. 0.8
March	39,467	dec. 5.6	inc. 2.1
April	35,866	dec. 3.4	dec. 1.2
May	39,250	dec. 2.2	dec. 1.5
June	37,304	dec. 3.0	dec. 5.0
July	39,196	inc. 2.2	dec. 6.0
August	42,406	inc. 1.0	dec. 3.0
September	43,778	inc. 1.9	dec. 1.3
Nine months	349,164	dec. 2.3	dec. 2.2

Estimating the probable results of the later months of the year, it would seem that the aggregate net ton-miles for 1928 will approximate a total of 470 billions,—a decrease of about one per cent under 1927 and three per cent under 1926.

Revenue passenger-miles for the first nine months of 1928 declined 6.6 per cent under 1927. With the exception of 1923, every year since 1920 has shown a decrease under the next preceding year. If the loss already sustained in the passenger traffic of 1928 continues to the end of the year, passenger-miles will be 33 per cent under the record year 1920 and the lowest of any year since 1909.

Revenues and Expenses

Total operating revenues for the first nine months of 1928 were 4,534 millions of dollars, a decrease of 124 millions, or 2.7 per cent, under the corresponding period of 1927. This decrease in revenue reflects the reductions of more than two per cent in freight traffic and more than six per cent in passenger traffic.

Total operating expenses were 3,341 million dollars in the same nine months, a reduction of 134 millions under the corresponding period of 1927, or 3.9 per cent. Transportation expenses were reduced $65,000,000, or 4 per cent. Maintenance of equipment expenses were reduced $48,000,000 or 5 per cent, and maintenance of way expenses $25,000,000, or 4 per cent a total reduction of $73,000,000 or 4.6 per cent in maintenance expenses as a whole. That the reduction in maintenance of equipment expenses resulted from greater operating efficiency is indicated by the fact that the proportions of locomotives and of cars in serviceable condition have been virtually stationary. These various reductions in operating expenses during the first nine months of 1928 mark the extent to which the railways have kept their expenses in hand during the current year. Only the application of the most rigid economy has saved railway net income from showing a large decline.

Net operating income was 820 million dollars, an increase of ten million over the same nine months of 1927. The rate of return on investment, however, slightly declined.

Railway investment shows a continued increase, year by year. During recent years the net operating income has not kept pace with the increase in investment leading inevitably to a marked decrease in rate of return since 1926.

The net operating income of that year—the entire year 1926—was the largest in railway history, resulting in part from the greatest freight service ever rendered to the American people. Between 1926 and 1927 property investment increased, while net operating income declined. The rate of return on investment of course fell. From 1927 to 1928 the investment has again increased, while net operating income showed only a slight rise. The increase in net income was relatively smaller than the increase in investment, and the rate of return therefore declined. That rate of return was 4.55 per cent during the first nine months of 1928, contrasted with 4.60 per cent during the corresponding period of 1927. These rates for nine-month periods have been placed on an annual basis of comparison.

Wages and Taxes

Wage levels continue to rise. Average earnings per hour for all classes of employees in the first eight months of 1928 were 67.8 cents per hour, an increase over the same period in 1927 of 1.3 cents. Applied to the total hours of service of a typical year, this amounts to an annual payroll increase of approximately $60,000,000 from increase in wage rates. Adjustments of wage rates of several classes of railway employees during the past two or three years are reflected in the continued increase in average hourly earnings.

Taxes show a slight reduction so far this year, but a reduction relatively smaller than the decrease in revenues. The ratio of taxes to operating revenues has therefore increased, standing now at the highest point ever known. In the first nine months of 1928, 6.30

* From a Report Submitted to the American Railway Association by the Bureau of Railway Economics.

cents out of every dollar of revenue was absorbed by taxes, contrasting with 6.17 cents in the same period of 1927. The ratio of taxes to revenue during the ten-year period from 1917 to 1927 ranged between a minimum of 4.4 cents per dollar and a maximum of 6.1 cents per dollar, the trend being almost constantly upward.

Railway Capital Expenditures

The railways this year, as in every preceding year, have been expending new capital on plant improvements, new equipment, and other facilities. The capital so invested in railway additions and betterments during the first nine months of 1928 aggregated $500,000,000.

Summary figures for 1928 and 1927 follow.

Item	*Capital expenditures, nine months ended September 30* 1928	1927
Equipment:		
Locomotives	$ 37,121,000	$ 53,721,000
Freight-train cars	89,920,000	104,565,000
Passenger-train cars	27,187,000	31,383,000
Other equipment	11,739,000	15,323,000
Total equipment	$165,967,000	$204,992,000
Roadway and Structures:		
Additional track	$ 91,241,000	$108,002,000
Heavier rail	34,891,000	35,199,000
Additional ballast	12,621,000	10,669,000
Shops and engine houses	22,375,000	28,102,000
All other improvements	173,072,000	183,251,000
Total Rdway. and Struct.	$334,200,000	$365,223,000
Grand Total	$500,167,000	$570,215,000

It will be seen that gross capital expenditures for all purposes are $70,000,000 less than in 1927, or about 12 per cent, Capital expenditures for roadway and structures declined $31,000,000 or 8.5 per cent, while capital expenditures for new equipment were less by $39,000,000, or 19 per cent.

Authorizations carried over on October 1, 1928, amounted to $402,000,000. This was smaller by $25,000,000 than in 1927.

Railway capital expenditures for the year 1928 are estimated at approximately $650,000,000, an estimate which makes possible the compilation of the following statement, showing gross capital expenditures made since the close of Federal Control in 1920:

Railway Capital Expenditures
CLASS I RAILWAYS IN THE UNITED STATES

Calendar year	*Amount*
1920	$653,267,000
1921	557,035,000
1922	429,273,000
1923	1,059,149,000
1924	874,743,000
1925	748,191,000
1926	885,086,000
1927	771,552,000
1928 (est'd)	650,000,000
Total—Nine years	$6,628,296,000

These expenditures for improved railway plant, aggregating more than six and a half billion dollars in nine years, comprise one significant contribution by the railway industry to commercial activity in the United States, as well as a vital contribution to operating efficiency within the industry itself.

Railway Purchases

Another significant contribution of the railways to commercial activity is measured by their purchases of fuel, materials, and supplies. Railway purchases in 1927 amounted to $1,395,928,000.

During the five years from 1923 to 1927, railways spent in direct purchases nearly seven and a half billions of dollars, or about a billion and a half per year.

By "direct purchase" is meant items bought and paid for by the railways themselves. They also are indirect purchasers of many commodities that go into railway equipment, and into new construction contracted for under lump-sum agreements.

Large capital expenditures and close attention to efficiency have resulted in improved operating performance this year. Outstanding achievements are briefly indicated below, applying in each case to the first nine months of 1928, compared with the corresponding nine-month periods of the several years back to 1923, when the railway program for specific improvement in operating efficiency went into effect.

Car-miles per freight car-day show an almost continuous increase, from 27.6 miles in 1923 to 30.7 miles in 1928. In computing this average, account is taken of all freight cars in service, including cars in transit, cars in process of being loaded and unloaded, and cars undergoing or awaiting repairs, as well as cars on sidetracks for which no load is immediately available.

Net tons per freight train have increased from 718 tons in 1923 to 787 tons in 1928.

Freight train speed has risen consistently, from 10.8 miles per hour in 1923 to 12.9 miles in 1928.

The proportion of freight locomotives in serviceable condition has risen consistently each year, from 77.3 per cent in 1923 to 83.7 per cent in 1928.

Gross ton-miles per freight train-hour have increased continuously and markedly, from 16,607 in 1923 to 23,537 in 1928.

Fuel consumed per thousand gross ton-miles in freight service has shown progressive improvement, from 161 pounds in 1923 down to 126 pounds in 1928 for performing the same service.

Fuel consumption in the passenger service has also shown progressive improvement, from 18.2 pounds per passenger train car-mile in 1923 down to 14.9 pounds in 1928.

All these comparisons, as stated, are for nine-month periods in the respective years.

Another measure of operating efficiency is the combination of efficiency factors into an index, so that a convenient percentage basis of comparison may be used in connection with the average of some previous period. Using the five years 1920 to 1924 as a basic period, the average efficiency of the railways is taken as equivalent to 100.

Thirteen operating efficiency factors have been included in the "index," or composite average, namely:

1. Car-miles per car-day.
2. Ton-miles per car-day.
3. Gross tons per train.
4. Net tons per train.
5. Gross ton-miles per train-hour.
6. Net ton-miles per train-hour.
7. Locomotive-miles per locomotive-day (Freight).
8. Locomotive-miles per locomotive-day (Passenger).
9. Percentage serviceable locomotives (Freight).
10. Percentage serviceable locomotives (Passenger).
11. Percentage serviceable freight cars.
12. Fuel consumption per unit (Freight).
13. Fuel consumption per unit (Passenger).

These factors, combined and computed for the first nine months of 1928 and compared with the basic period, 1920-1924, give the following results:

	(Average 1920-4 = 100)
January, 1928	117.1
February	118.3
March	118.1
April	118.8
May	117.7
June	115.9
July	118.7
August	118.1
September	118.8

These index figures are the highest on record for each of the nine months of 1928 for which returns are

available at present. Maintenance of the high level of operating efficiency is expected for the rest of 1928, so that the average for the year as a whole will be higher than for any preceding year. The corresponding averages for the entire years 1924 to 1927 are comparable with the first nine months of 1928 as follows, and show a definitely continuing progress:

	(*Average 1920-4 = 100*)
1924	104.8
1925	109.4
1926	113.5
1927	115.2
1928 (9 months)	117.8

The efficiency index figures here presented for the first nine months of 1928 mean that there was an improvement in railway operating efficiency in each of the individual months of from 15.9 to 18.8 per cent, compared with the basic period (1920 to 1924). When averaged over the nine months as a whole, the percentage of improvement was 17.8 per cent.

This efficiency index does not include the factor of tons per loaded freight car for the reason that that factor is one for which responsiblity is shared with the shippers. Improvement in this average was not shown in 1928 a fact that emphasizes the importance of sustaining every effort to increase the load in the car.

Net tons per loaded car (including less-car-load freight) during the first nine months of 1928 averaged 26.5 tons, the lowest in any corresponding period of the preceding five years. In 1927 it was 27.3 tons, and in 1923 stood as high as 28.1 tons.

The further significance of this point is apparent from a consideration of one of the thirteen efficiency factors that is included in the index, namely, net ton-miles per freight car-day, which is affected by the average load per car. This factor showed a slight reduction to 514 ton-miles during the first nine months of 1928, from 521 in 1927. This average for 1928 was higher than in 1923, 1924, and 1925.

Increase in Net Tons Per Train

In spite of the smaller load per car, the railways were able also to show a slight increase in net tons per train during the first nine months of 1928.

The most striking efficiency gain in 1928 was in gross ton-miles per train-hour, which was increased from 21,876 during the first nine months of 1927 to 23,537 in 1928. This was an increase of 7.6 per cent over 1927, and of 42 per cent over 1923.

The improvement in net tons per train was attained by the railways, in the face of a falling carload, through the greater use of facilities and improved motive power made available during the past five years by large capital expenditures. The large increase in gross ton-miles per freight train-hour reflects the greater train speed per hour, together with other factors.

Management Responsible for Economies

Thus it appears that in the majority of factors for which railway managements were wholly responsible, the operating efficiency of the railways in 1928 has shown continuing improvement over the performance of the past five years. Their general efficiency during this period is marked not only by progress in many of the individual factors of performance, and by improvement in the general index of efficiency, but also by the economies which have enabled them to maintain their net income against declining traffic and revenues. How long this process can be continued is one of the important problems now confronting the railway industry, the shippers of the country, and the general public.

Santa Fe Improves Its Communication Facilities

IN order to provide more extensive and efficient telegraph and telephone service, the Atchison, Topeka & Santa Fe has made many improvements and additions to its facilities within recent years. In its plant, these improvements include better pole lines through the installation of creosoted Southern yellow pine timber and the rearrangement of wires in anticipation of future requirements for telephone service, railroad-owned automatic telephone plants, local and long distance telegraph printer circuits, and the reconstruction of numerous offices, replacing obsolete facilities with modern apparatus of increased efficiency.

Among the newer equipment, two teletype printer circuits have been placed in local service, one between

High-Speed Automatic Printing Telegraph Equipment in Topeka, Kan., Office

the Railway Exchange building and Corwith yard, Chicago, serving four stations, and another between the local freight office in Kansas City, Mo., and West yard, Argentine, Kan., serving four stations. These circuits are used to facilitate the dissemination of information concerning car movements through the yards.

The demand for communication service had grown to such an extent that the road was confronted with the problem of either erecting additional wires at heavy expense or increasing the capacity of existing circuits to take care of it satisfactorily. As the latter was the most economical plan, it was adopted, the solution being effected by installing high-speed automatic printers on the lines shown in Table A.

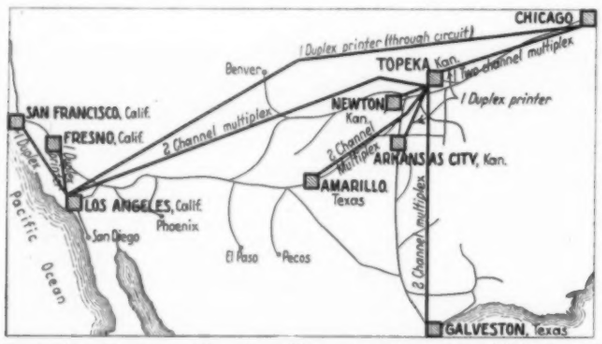
Table A—Santa Fe Lines Equipped with Printing Telegraph Circuits

Chicago to Los Angeles, Cal.	1 duplex printer
Chicago to Topeka, Kan.	1 duplex and 1 two-channel multiplex
Topeka, Kan., to Los Angeles, Cal.	1 two-channel multiplex
Topeka, Kan., to Galveston, Texas	1 two-channel multiplex
Topeka, Kan., to Newton	1 two-channel multiplex
Topeka, Kan., to Amarillo, Texas	1 two-channel multiplex
Topeka, Kan., to Arkansas City	1 duplex printer
Los Angeles, Cal., to San Francisco	1 duplex printer
Los Angeles, Cal., to Fresno	1 duplex printer

Some indication of the expansion in the volume of telegraph traffic on the Santa Fe is afforded by a recent survey of the messages handled during the five-year period from 1922 to 1926 inclusive, and during 1927. In 1922, a total of 21,260,000 messages were transmitted, as compared with an annual average for the five-year period of 22,910,000 messages. This increase of 7.8 per cent is relatively slight when compared with the increase in the number of messages

handled during 1927, when 26,030,000 messages were transmitted, an increase of 4,770,000 or 22.4 per cent over 1922. This shows clearly that the greatest increase in telegraph business occurred in 1927 and this tendency has stimulated the greatest utilization of the communication plant facilities. In order to handle more efficiently the growing communication service, careful studies have been made of the several possible methods, and routine practices and instructions covering the operation of telegraph and telephone facilities have been standardized and promulgated over the entire system. This has not only obviated conflicts and misunderstandings, but has served as a guide for the smooth and prompt handling of the business.

To provide local intercommunicating telephone service at offices, terminals and shops, railroad-owned automatic telephone exchanges have been provided at four



Santa Fe System, Showing Extent of Present High-Speed Automatic Printer Installations

points, because these automatic exchanges are considered to be the most efficient method of intercommunication at present available. These Santa Fe exchanges, and the number of telephones connected are in service at:

Chicago, Railway Exchange building	200 phones
Kansas City, Mo.	200 phones
Albuquerque, N. M.	100 phones
Barstow, Cal.	100 phones

In Topeka, Kan., Los Angeles, Cal., and San Francisco, unified telephone service has been brought about; that is, all railway city telephones are terminated in one exchange switchboard, the public calling the number for that exchange only and the calls being distributed to the proper persons or departments by the operators. These operators are also kept posted concerning passenger trains, and they answer inquiries from the public as to whether trains are on time, etc.

Selective ringing yard telephone circuits have been installed at 11 yards, while at 8 of these yards—Chicago, Chillicothe, Ill., Shopton, Iowa, Kansas City, Mo., Arkansas City, Kan., Ponca City, Okla., Amarillo, Texas and Los Angeles, Cal.,—combination visual and audible signals (loud sirens), or the latter type only, have been placed on the yard telephone circuits. Connections with the desired yard offices can be effected more quickly over the telephone with the aid of these signaling adjuncts of the telephone system.

Creosoted Pine Poles in Wire Lines

Since the inception of wire service, durable pole lines for carrying the wires have been more or less of a problem, especially since about 1912, when virgin timber became scarce and the use of the less durable second growth timber became necessary. Prior to 1922, the Santa Fe had made no general use of creosoted timber in its telegraph pole line, which are constructed and maintained jointly with the Western Union Telegraph Company. The low grade of untreated timber suitable for the purpose and available at that time forced a change in policy for reasons of economy and stability. Southern yellow pine, pressure treated with 12-lb. of creosote to the cubic foot, was adopted as standard. To date more than 100,000 creosoted pine poles have been placed in service, and, so far, they have more than fulfilled expectations, particularly in storms. With the work outlined for this year, there will be no section of the main line where creosoted poles are designated for use, in which treated timber will not be represented.

Wires have been placed in underground cables through the yards in Argentine, Kan., Newton and Pasadena, Cal., where conditions are unfavorable to the maintenance of open wire lines. Emporia, Kan., will be given similar attention this year. In the reconstruction of pole lines which are located on the side of the track opposite depots, the cables leading into the stations generally have been placed underground in order to eliminate crossings over the main-line tracks.

Future Telephone Service Kept in Mind

In the reconstruction of a pole line, where it has been necessary to make use of a transfer cable to parallel wires taken down during reconstruction, the wires have been rearranged and copper wires in telegraph service have been paired and transposed for future telephone service. These wires, together with existing copper telephone circuits, have in turn been paired and transposed for phantom telephone service at a negligible cost. As a result of this practice, many circuit-miles of wire arranged for physical and phantom telephone service are now available whenever required.

Where automatic signals have been installed and manual block telephones are no longer required, the two wires that were used for that purpose have either been placed in through telephone service, or they have been substituted for telegraph wires, releasing copper wires which have, during the reconstruction of the pole lines, been paired and transposed preparatory for future telephone service, giving the railroad conversational and divisional message telephone circuits with practically no extra expense.

A total of 19 sets of high-speed duplex repeaters, located in various relay offices repeat the telegraph printer circuits. Sixteen of the 21 system relay offices have been reconstructed and equipped with standard apparatus of increased efficiency. Selector concentration units are now in service in 15 offices, 13 of which are relay offices and 2 division telegraph offices. With these facilities, a visual signaling system is provided in the telegraph offices, to call the attention of the operator to a calling station which has a message to transmit. A total of 89 test offices have been equipped with terminal cabinet, pin-jack switchboards with standard electrical protection to facilitate testing and patching and to insure greater conductivity as well as protection to apparatus and buildings against lightning discharges and high-tension surges on parallel transmission lines. Many way stations are equipped with the unit type of protective switchboard in which the apparatus is similar to that provided in the terminal cabinet type, each unit serving one wire. All station ground wires are tested quarterly and defective ones corrected. This, in connection with standard electrical protection, has resulted in improved continuity of service as well as a large decrease in the number of instruments damaged by lightning.

Crowley Talks on Problems of Railways

New York Central President emphasizes needs of carriers and discusses electrification

PATRICK E. Crowley, president of the New York Central Lines, was the speaker at the third annual dinner of the Electric Association of Chicago which was held in that city on the evening of November 15. The presidents of all the railways were invited to the dinner and it was attended by railway executives from all parts of the country as well as by many other railway officers.

"While all industry is struggling with the complex questions inevitably raised by modern conditions," said Mr. Crowley in his address, "the industry with which I am most familiar and upon which I am best qualified to speak—the railroad industry—has had and has grave questions confronting it which call for wise solution, but which can only be solved by an understanding of those questions by those whose business is with the railroad, although not of it, and whose interests lie not only in the successful development of their own business, but in the successful maintenance and intelligent growth of an adequate and efficient transportation system.

Railway Needs Becoming Greater

"The fundamental need of all industry is money. With the enormous expansion that has been going on in the last decade, that need to the railroads is becoming greater and greater because of the enormous expenditures necessary to keep the railroads in proper condition to do the business that is offered them; to make the improvements that are necessary: to improve the state of the art and keep the standards of service so high that the public, that is, the railroads' customers, will be satisfied.

To meet these demands and needs, the railroads of the country have, since 1920, invested over five billions of new capital in improvements and additions. The question is, what can be done to enable this great industry to continue to furnish even more effective service in the future than it has in the past.

"Enlarged passenger terminals, new and larger passenger stations, are desired by the public. Widespread demand exists for the elimination of railroad crossings, perhaps the most expensive proposition with which the railroads are confronted. The business of the country requires the enlargement of freight terminals, additional tracks, and modern and efficient equipment. In the aggregate it is conservatively estimated that the capital needs of the American railroads are close to a billion dollars a year."

Capital Requirements Emphasized

Mr. Crowley emphasized the fact that railroads, like any other industry, must raise money either by selling bonds or stocks, or by earning it, and that in order to do this they need to increase their revenues. He referred to the influences which tend to reduce their revenues—reductions in rates resulting from orders of the Interstate Commerce Commission, or caused by competition and losses of traffic due to waterway and highway transportation. Comparisons are made between rates on grain in the United States and Canada, but the fact is ignored that the Canadian railroad commission had held that these rates in Canada were 35 to 60 per cent lower than adequate and that while Canadian railroads pay only $235 per mile in taxes, railways in the United States pay $1519 per mile. He alluded, also, to the agitation for legislation to abolish the Pullman surcharge. He urged more co-operation by business interests with the railways to secure fair regulation because "if we are to continue to furnish the present service, or better service, if we are to continue to maintain our properties at the standard required by present day conditions, if we are to continue to make such improvements and additions as the growth of the country and the growth of business warrants and demands, then, it seems to me, the time has arrived when we should all act together, because in the ultimate result our interests are the same."

Railway Electrification

Mr. Crowley's remarks regarding electrification of railroads had a direct bearing on the situation in Chicago because of the persistent demands for electrification of the railway terminals of that city.

"As long ago as 1899," he said, "the New York Central began to study the method of operation in and out of Grand Central Terminal, in New York, the approach to which is through a tunnel over two miles in length, with an additional three miles upon an elevated structure through city streets, fronted by dwellings and business buildings. It was a pioneer venture in respect of operation on the scale that had to be undertaken owing to the fact that it was not feasible to change power upon trains until the limits of New York were passed. With the aid of state legislation, the cooperation of the state and municipal authorities and of the electric industry, a wise plan was made and the operation has been successful, particularly from the standpoint of developing the suburban traffic, which, carried at the lowest rates afforded such traffic, so far as my knowledge pertains, in this country, is continually growing and making increased demands upon our facilities. While we do not separate our net returns from this traffic, owing to the fact that it is interwoven with long distance traffic which also comes in over the same line and to the same terminal, we can with confidence state that there is no available method by which the conditions and patronage could be satisfied with steam operation.

"For many years the traffic via the Michigan Central operated by ferry across the Detroit River. This was, however, unsatisfactory, particularly in seasons when ice and fog interfered with schedules and comfort. By the construction of the tunnel under the river the railroad was made continuous; but it would have been out of the question, in my belief, to have a satisfactory result from this tunnel operation without the availability of electric power.

"We are just entering into a third major installation

of electric power upon the New York Central Lines—this time in and about Cleveland. As in Detroit, the work is being done in connection with a passenger station development, which involves considerable underground operation and which, I believe, specially invites the use of electricity.

"On the other hand, in the new passenger terminal now nearing completion in Buffalo and in the proposed Union Station at Cincinnati, there is no immediate need for electrification, as the trains will be operated entirely in the open. In other words, Cincinnati presents one problem, New York another and Chicago still another. Each differs from the others, as may be said of almost every city on our system. Each has problems of its own, and the local situation must be studied most carefully to develop the lines along which we should move to best serve each particular community, and not with the thought that what has been done in New York, or anywhere else, is the right thing to do at any other place.

"Take this great City of Chicago, a prime essential of the operating problem of the many railroads that enter here is the expedited interchange of freight between them. At no other point in the world is there interchange quite comparable to this. It is a problem unique in itself. The Chicago situation must be settled, and we are now engaged in studying it; and it will be solved if the railroads and the various local public bodies cooperate with the thought of arriving at a conclusion that will best serve the interests of the city and its railroads.

"We are also experimenting with self-contained electric types of motive power which can operate either from wayside current, or where such is not available, by electricity which is produced by a Diesel power plant on the locomotive itself. We hope these experiments will result in the availability of a satisfactory unit of power, economically reasonable in cost and obsolescence as well as operation and maintenance, with which to meet the requirements which may develop from time to time in this general field of operation, particularly industrial switching, within congested municipal limits."

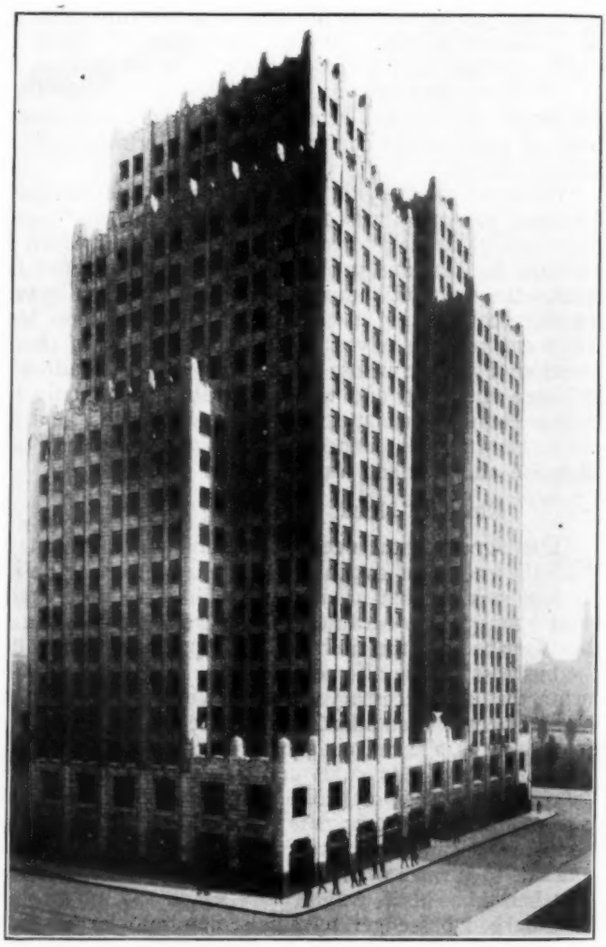
New General Offices for Missouri Pacific

THE Missouri Pacific, by the completion of its new general office building at St. Louis, Mo., is the latest addition to the ranks of the large roads which have provided such facilities for themselves. This structure, while designed primarily for office purposes, has been treated architecturally to present a pleasing appearance, which is all the more important since it is located on Thirteenth street, between Olive and Pine streets, in close proximity to the proposed civic center of that city.

Building Is 22 Stories in Height

The building, which is 22 stories in height, with provision for 8 additional stories in the future, has a frontage of 193 ft. 2½ in. on Thirteenth street, and of 100 ft. on Olive and Pine streets, with a total floor space of 230,000 sq. ft. Set-backs are provided above the twelfth and the eighteenth floors, the thirteenth to the eighteenth stories, inclusive, having ouside dimensions of 159 ft. by 100 ft., while those above the latter story are 125 ft. by 84 ft. over all. The frame is of steel construction, encased in concrete, and the building is designed to be fireproof throughout, much of the office furniture being of metal as a further means to this end.

In the design of the building, recesses are employed to furnish an ample supply of natural light, while artificial illumination is provided by semi-indirect fixtures. The heating and ventilation of the first floor and of all the toilets throughout the building are of the indirect system while the offices above the first floor are heated by direct radiation, with overhead steam pipes and vacuum return. Electric current for lighting and other purposes, as well as steam for heating, is obtained from the Union Electric Light & Power Company, although



The Building is Faced with Buff Terra-Cotta

provisions have been made for the installation of boilers and generating units in the building if they should be desired in the future.

Telephone communication with the city exchanges and between the offices in the building is conducted through an automatic switchboard, which is also connected by nine long distance trunk lines with the more important offices on various parts of the system. In some of the departments, light signals are used instead instead of the usual bell signals in order to reduce noise. The building was designed by E. M. Tucker, architect of the Missouri Pacific, under the direction of E. A. Hadley, chief engineer. Construction was started about December 1, 1926, and the building was completed, ready for occupancy, in May of the present year.

State Commissioners Meet at New Orleans

Favor national motor transport act despite opposition to increased federal powers in regulation

THAT the subject of most vital concern to the members of the state public service commissions is their status with respect to the control of intrastate rates under the terms of the Transportation Act, was clearly evident throughout the entire convention of the National Association of Railroad and Utilities Commissioners, which was held on November 13 to 16 at the Roosevelt Hotel, New Orleans, La. "It is the never-ending conflict", said President Henry G. Wells of Massachussetts in his annual address, "between those who would center all possible governmental activities under federal jurisdiction and those who would preserve at least a semblance of power over matters affecting the citizens of the respective states to the states themselves and their governmental agencies. .....It is only necessary to point out that as an organization representing the individual states it behooves us to be on our guard lest the faults of the Transportation Act of 1920 be repeated. There is further an individual responsibility resting upon each of us to bring to the attention of the members of Congress from our respective states any provisions of a proposed act which interferes with the fundamental rights of those states."

The status of regulation by the state commissions was discussed by John E. Benton, Washington, D. C., in his report as general solicitor for the association. He recounted the unsuccessful efforts of the association to secure interpretations of the Transportation Act that would curtail the power of the Interstate Commerce Commission in rate cases embodying the factor of discrimination between interstate and intrastate rates. "Decisions of the Supreme Court of the United States," he said, "have effectively done away with the old-fashioned intrastate rate case in which valuations of carrier property within the state had an important bearing."

If there has been any feeling on the part of the commissioners that the managements of the railroads have viewed with some degree of satisfaction the lessening prerogatives of the state regulatory bodies, they were given good reason to feel that this attitude is not held by the public utility companies. The address presented by H. M. Brundage, vice-president, Consolidated Gas Company, New York, with the title "Hard A-port! Breakers Ahead," removed any doubt as to his position with respect to the current movement for federal regulation of utilities.

"We, of the utilities," said Mr. Brundage "know that state regulation is functioning wisely, efficiently and in the public interest. We know, also, that the overwhelming majority of the public is satisfied with it. I wonder if any of these chronic faultfinders ever tried to visualize the situation that would exist if the federal government actually undertook to regulate the utilities in all of the states. Certainly no real friend of that government would wish such an impossible task upon it —not only impossible, but useless even if it were possible, because the work is so much better done by existing agencies."

The public utilities were represented on the program also with an address by J. P. Barnes, president of the American Electric Railway Association. Milton W. Harrison, president of the National Association of Owners of Railway Securities, read a paper on the regulation of security issues which is abstracted on a following page.

Position on Walsh Resolution Presented

By far the most emphatic expression of the associations stand on states' rights with respect to regulation was embodied in the report made by Lewis E. Gettle of Wisconsin, as chairman of the special committee appointed by President Wells to appear before the Senate Committee on Interstate Commerce pursuant of the Walsh resolution that lead to an investigation of public utilities by the Federal Trade Commission.

The purpose of the report was to clear up misunderstandings with respect to the attitude of the committee concerning this resolution, which not only charged the utilities with unconscionable manipulation of securities but also attacked the integrity of the state commissions While bitterly criticizing the methods pursued by Senator Walsh, he made it plain that the committee did not oppose such an investigation and had tendered the cooperation of the state commissions in its prosecution in any manner that did not involve an invasion of the rights of the states in the regulation of utilities. A resolution, outlining the committee's position with respect to the investigation of utilities, received the unanimous vote of the convention.

Active Interest in Co-operation

Mr. Benton also reviewed the history of co-operation between state and federal commissions under the provisions of Section 13 of the Transportation Act, with particular reference to what he termed "a lack of co-operative spirit" on the part of the Interstate Commerce Commission until the formulation of the co-operative agreement in 1922. "The plan is still new," he declared, "and it will require a long process of education before it can become fully effective."

In addition to progress reports by Paul A. Walker, of Oklahoma, for the Committee on Co-operation and by J. J. Murphy, of South Dakota, for the Co-operative Committee of Western Commissioners on the Hoch-Smith Resolution, William J. Smith, of Illinois, presented a report for the Committee on Railroad Rates, which was devoted largely to this same subject. This is abstrated below.

Serious consideration should be given to extending this co-operative plan in a manner that will prevent any claim being made that orders issued by the Interstate Commerce Commission prevent state commissions or railroads from exercising independent judgment as to intrastate rates.

Recently the following provision of a tentative report submitted in Interstate Commerce Commission's Docket No. 17000 was directed to the attention of the commission:

The relationship between interstate and intrastate rates is clearly within the scope of Docket 1700, *Rate Structure Investigation.* It is obvious however, that a general revision of the rate structure along the broad lines

here contemplated can successfully accomplish its purposes only if the rate structures within the several states are at the same time subjected to such revision as may be necessary to bring them into full harmony with the interstate rates finally determined upon. To this end the most complete co-operation between the state and federal commission is essential.

Conclusions have been reached by some that the co-operation suggested in this decision consist of the state commissions relinquishing their right of independent judgment concerning intrastate rates. While the chairman of this committee does not harbor the same views with respect thereto, he is unable to determine the kind of co-operation that the report suggests should be indulged in to prevent any conflict between state and federal regulation.

It is not infrequent that the carriers appear at the hearings conducted by state commissions and offer a part of the record in that proceeding copies of orders entered by the Interstate Commerce Commission concerning the rates then under investigation, asserting that these orders prevent the carriers from establishing rates on principles differing from those adopted by the said orders, although the transportation or commercial conditions may be entirely different. In others, upon appeal from the decisions rendered by state authority, the contention is made that the carriers are relieved from a compliance with orders entered by state commissions because of some provision in the order of the Interstate Commerce Commission.

To obtain full and complete co-operation it is essential that, before orders are entered by the Interstate Commerce Commission fixing a relationship between commodity rates and the first class rates applicable in the same territory, conferences should be held between representatives of the commissions of the affected states and representatives of the Interstate Commerce Commission and that such conferences should be held irrespective of whether there is pending before the state commission in any formal proceeding on the rates under investigation by the Interstate Commerce Commission.

The various orders that will be entered by the Interstate Commerce Commission following their investigation in Docket 17000 under the Hoch-Smith resolution, as indicated by the tentative reports of the Interstate Commerce Commission under this investigation, will cause numerous claims to be made that the rates prescribed by the said orders in a very large measure determine definitely the intrastate rates to be applied. Thus the power of the state regulatory bodies will rapidly diminish unless it is made clear by the decisions of the Interstate Commerce Commission that it is not intended by these decisions that a departure from those rates may not be made by the order of the state regulatory bodies.

A postscript in the form of a letter from F. P. Morgan of the Alabama commission pointed to the growing practice of the railroads to offer low excursion rates, and suggested that the state commissions might well investigate this practice with a view to preventing unjust discriminations against regular patrons of the carriers' passenger trains. The convention adopted a resolution calling for such an investigation and a petition to Congress for an act requiring the sale of mileage books at a rate of less than 3.6 cents per mile.

Largest Attendance in History

The association was welcomed to New Orleans with addresses by Huey P. Long, Governor of Louisiana, Arthur J. O'Keefe, Mayor of New Orleans, and Francis Williams, chairman of the Louisiana Public Service Commission. According to James B. Walker, of New York, secretary of the association, 40 state commissions were represented by 110 commissioners and members of commission staffs, the largest attendance in the history of the organization. The Interstate Commerce Commission was represented by Commissioner Clyde B. Aitchison, who presented the principal address at the first session which is abstracted in following pages.

Public Ownership a Dead Issue

The program was a full one, but by no means as congested as in past years, owing to the fact that a number of committee reports were very brief. That the reasons for this were recognized, was evident in the report of the Special Committee on Revision of the Constitution, which recommended the abolition of several committees. Among those listed as having outlived their usefulness is the Committee on Public Ownership, the reason, as quoted below, being significant as evidencing the prevailing attitude of the membership on this subject.

"This committee may well be elided. At the same time it was created the question of public ownership and operation was a topic of public interest and much controversy. Sentiment among the commissions themselves was divided and the topic was regarded as one proper for consideration and discussion by the national association. In the course of years, sentiment within the association has so crystallized that for several years the reports of this committee have reflected the conviction of the member commissions against the advisability of public ownership and operation. For some years each report of this committee has been a repetition of the report of the previous committee, with changes in verbiage."

It was decided to hold the next convention at Glacier National Park on August 27, 1929. The election of officers resulted as follows: President, Lewis E. Gettle, chairman, Wisconsin Railroad Commission; first vice-president, Charles Webster, chairman Iowa Board of Railroad Commissioners; and second vice-president, A. J. Maxwell, member, North Carolina Corporation Commission. John E. Benton, general solicitor; James B. Walker, secretary; and C. S. Bailey, assistant secretary, were re-elected.

Committee Reports in Brief

Assuming that the proposal of the railroads to take over the express business involved no intention of disturbing present working conditions, the Committee on Express and Other Contract Carriers offered the conclusion that there could be no objection to such action by the roads. The report of this committee, which was presented by O. P. B. Jacobson, of Minnesota, also embraced a history of the express business and a review of the operations for 1927.

The report of the Committee on Statistics and Accounts reviewed the efforts being made in behalf of the association to have the Interstate Commerce Commission embody, in its investigation under Ex Parte 91, General Revision of Accounting Rules, an inquiry into the practicability of segregating operating expenses and revenues by states and rate territories. A complete transcript of the direct testimony of L. R. Bitney, chairman of the committee in the hearings on this investigation, was also included. Approval of the committee's work by the association was indicated by the adoption of a resolution reaffirming the resolution of instructions to the committee adopted at the convention in 1927.

The report of the Committee on Valuation manifested the active interest in the subject which the association has taken in federal valuation since the outset of this enormous undertaking. That the state commissioners see in it a source of information of value to them is evident from the following statement embodied in the report:

"It has been a matter of keen disappointment to state commissions that the Interstate Commerce Commission has not complied with the mandatory provision of paragraph (f) of Section 19 a and shown the value of each railroad separately in each of the several states and territories and in the District of Columbia. It is true that such separation has been made of all fixed physical

property of the carriers, but apparently no effort has been made to allocate to states their proportion of floating equipment and other elements of value."

The committee concluded its report, which consisted in the main of a review of the present status of the work, by recommending that the association continue the employment of a valuation counsel.

Federal Regulation of Motor Transport Favored

At no session of the convention was interest more keen than in the special evening meeting devoted to highway transportation. The Committee on Motor Vehicle Transportation, headed by Amos A. Betts, of Arizona, presented an extended report on the progress being made in coach and truck operation, which was received without comment, interest at the meeting being centered on the current status of efforts to secure an act to provide for interstate regulation.

A.A.A. Bus Division Wants Certification Only

This was reviewed in the Report on Motor Vehicle Legislation, presented by John E. Benton, the association's general solicitor, who urged that the association continue its support of the movement for interestate regulation. Ivan Bowen, former member of the Minnesota commission and now a member of the legislative committee of the Bus Division, American Automobile Association, read a paper in which he contended that federal regulation should be restricted to the granting of certificates of convenience and necessity, since the power to revoke such certificates would, in his opinion, insure adequate control. The level of rates, he contended, was effectively controlled, by competition, with the private automobile. The administration of regulation under the Parker bill, he stated, would be unwieldy if not entirely impracticable.

H. LaRue Brown, general counsel of the Automobile Chamber of Commerce, defended the action of the manufacturers in opposing the passage of the Parker bill on the ground that conditions in the industry have changed so extensively since the bill was drawn that its provisions do not fit present or potential needs. He declared that the growth of interstate coach traffic has been such that it must be treated from a national standpoint, and by way of illustration of the objections to the Parker bill, he pointed to the fact, that under its terms a prospective carrier must apply for a certificate in each individual state through which it is proposed to operate. He cited as a suggested substitution for this procedure, a plan under which applications would be considered in hearings before a board made up of representatives selected by the commissions of each state involved, but acting for the Interstate Commerce Commission. S. A. Markel, chairman of the legislative committee of the Bus Division, American Automobile Association, confirmed the statements made by Mr. Brown and outlined briefly some of the revisions of the Parker bill now being proposed.

Charge N. A. C. C. with Bad Faith

A specific charge that bad faith on the part of the representatives of the automotive manufacturers was responsible for the obstruction of legislation was made by J. S. Benn, of Pennsylvania, who offered to give complete particulars with respect to a "gentlemen's agreement" to the effect that the manufacturers obligated themselves to support the Parker bill in consideration of its revision to eliminate provisions for the regulation of interstate truck traffic. He declared that further conferences on the proposed law could have no other purpose but to delay action and whittle down the degree of authority with which regulatory authorities would be clothed through its enactment.

There was some discussion indicating an underlying uneasiness with respect to the diminishing of state authority to follow such legislation, but the general tenor of feeling was expressed by Clarence Gilmore, of Texas, who said that regardless of anxiety on that score, his observations of the operation of unregulated interstate coach traffic had convinced him that a federal law was absolutely necessary for the protection of the public. A. L. Janes, assistant general counsel, Great Northern, stated that the railroads generally favored interstate regulation and were anxious to get a workable law. In so far as the Parker bill was concerned, he felt that some of the machinery which it set up was unworkable.

Seek Uniformity in Intrastate Regulation

Mr. Gilmore offered a motion that the committee be continued with instructions to make every effort for the passage of the Parker bill in its present form or with minor modifications. However, following considerable discussion, it was passed only after it had been amended so as to permit the committee rather broad discretionary powers in considering proposed modifications of the bill. The association also adopted a resolution calling for the drafting of a uniform law for the regulation of the operation of motor coaches, motor trucks and private automobiles on highways.

Discuss Grade Crossings

The subject of grade crossings was reviewed by three different committees whose recommendations were not entirely in accord. In addition to a concise and pertinent discussion by the Committee on Grade Crossings presented by A. R. McDonald, of Wisconsin, the subject was covered in the reports of the Committee on Safety of Railway Operation and the Committee on Motor Vehicle Transportation. The recommendations offered in Mr. McDonald's report are abstracted below.

Crossings may be eliminated by separation of grades or by a complete diversion of traffic by highway relocation. Obviously, the financial costs involved are a controlling factor. Nevertheless the railroads and governmental units should plan for some expenditures each year for this purpose.

The protection of grade crossings offers the greatest field of activity. At the best it may be that we will always have grade crossings without gates, flagmen, or signals to warn of approaching trains, but a determined effort should be made to reduce the number of such crossings. All grade crossings should be provided with *caution* signs, such as "LOOK OUT FOR THE CARS" or "RAILROAD CROSSING" and advance warning disk signs which warn *only* of the presence of railroad tracks. These signs are required by statute in all or most states and the suggestion is offered that these signs, illuminated for night indication if desired, should be the only caution signs used to indicate railroad grade crossings. The money now being spent on the many other signs used for this purpose should be spent for *protection* signs which also warn of the approach of a railroad train. This leads us to the question of uniformity in grade crossing protection.

Need for Uniformity

Because of the great distances now traveled by autos and at speeds equalling or exceeding those of railroad trains, the driver must be guided by an observance of roadway signs of which he obtains only a glimpse as he flashes by. Therefore the crossing signs should be uniformly distinctive from other roadway signs and clearly and instantly indicative of either a railroad crossing upon which a railroad train may

or may not be approaching, or a crossing upon which a train is actually approaching. A basis for uniformity in highway road signs, other than crossing signs, is now offered by the United States standard roadway signs for federal highways.

The members of this association can do much in their respective states in these matters. The Railroad Commission of Wisconsin has standardized the wigwag type of signal, either automatically or manually controlled, for signal protection on grade crossings. As an indication of the efficiency of wigwag signal protection, the following figures relating to the experience of one large western railroad will suffice. The figures are for the years 1925, 1926, and 1927 and as stated below are yearly averages:

Crossings protected by gates	319.3		
Accidents thereon		46.6	
Accidents per crossing			0.146
Crossings protected by flagmen	279.3		
Accidents thereon		71.0	
Accidents per crossing			0.254
Crossings protected by bells	153.0		
Accidents thereon		46.3	
Accidents per crossing			0.302
Crossings protected by wigwags	383.3		
Accidents thereon		41.6	
Accidents per crossing			0.108

In many instances gate and flagman protection is afforded for only certain hours of the day. It is suggested that the intermittent protection thus afforded gives a false sense of security which cannot be said of the automatic signal on duty continuously.

The Committee on Motor Vehicle Transportation offered a somewhat different suggestion for crossing protection as quoted below:

We believe that it would be possible greatly to reduce the number of accidents at grade crossings by the installation of signals similar in character to the distance signals used by the railroads.

The existing railroad warning signals are placed upon the rights of way in many instances only a few feet from the railroad tracks. In many cases the vision is obstructed by trees, buildings or curves to such an extent that the signal is visible for only a few feet away from the tracks. It is manifest that a motor car traveling at a high rate of speed cannot come to an immediate stop when danger is encountered.

A Suggestion for Grade Separation

The Committee on Safety of Railroad Operation, which had been instructed to study the relative advantages of the expenditure of money for train control and grades crossing elimination, prefaced its report with a brief history of the development in this field that was concluded with the following statement:

Automatic train stop and train control devices are not perfect. Neither are automatic block signals. Both, however, if properly installed and maintained, add greatly to the safety of operation, and in the case of train stop and train control systems provide an important automatic check against the failure of the human element.

This was followed with a study of statistics compiled by the Public Service Commission of Pennsylvania on accidents occurring in that state from 1918 to 1927 inclusive, with a view to comparing the relative menace of accidents at grade crossings with those train accidents which could be presumed to be prevented by installation of automatic train control. The analysis was an exceedingly elaborate one, but may be summed up in the following.

There were 16.7 times more accidents, 8.2 times more killed and 3.2 times more injured at grade crossings on steam railroads in Pennsylvania during the last 10 years than due to main line train collisions. The grade crossing accidents are on the increase on the whole. The main line railroad collisions are continually on the decrease.

This was followed with a study of progress in grade crossing elimination and an analysis of the problem it presents, from which the following is abstracted:

Since the advent of the automobile in ever increasing numbers, to the extent that this transportation agency has now become a serious competitor with steam railroad carriers, the owner of the motor vehicle in all equity becomes a unit of assessment for his proportionate share of the cost of separating or eliminating or protecting grade crossings. Taking these apparent truths through to the last analysis, without considering the safety problems pressing for immediate solution upon the public authorities who must determine the issues, brings one to the conclusion, if the costs of separation, elimination and protection are to be assessed and imposed upon those benefited in proportion to the benefits conferred, that federal and state appropriations should be made therefore, so that the entire burden of cost may not rest upon the carriers and the local municipalities within whose limits the particular grade crossing may exist.

Effective Regulation Versus Public Ownership*

By Milton W. Harrison

President, National Association of Owners of Railway Securities

In this country, the sound and extensive development of railroad transportation and other public utilities has been due to private incentive and initiative. The American public is convinced that the greatest efficiency and economy in the operation of these enterprises will continue to flow from private ownership and management. The function of public regulation is to check bad tendencies, to correct evils which may injure service and credit; to insure reasonable charges, and with particular reference to carriers, fairly to arbitrate differences between groups of interests when they appear to be in irreconcilable conflict. The function of management is to render the highest quality of service for the least expense, operating in accordance with the rules of the business which have grown out of experience and the regulations imposed by the public in the interests of fair play. When regulatory bodies pass beyond their proper functions, and get over into the realm of management, they court disaster for the business involved, inviting serious loss and inconvenience to the community served. When management ignores the functions of judicial and fair regulation in the interests of good feeling and equitable treatment as between customers, security owners, wage earners and management, they, too, are courting the disaster almost certain to follow peremptory and sometimes ill-advised action by an angry constituency.

Responsibility of Regulatory Authority

We have passed the primary period in the development of the railroad and utility industries and are now in a period where exercise of the soundest discretion on the part of regulatory authority, as well as the industries regulated, is essential to the retention of the advantages of the progress already achieved and to the advancement of stability and equilibrium. It is regrettable that regulation is sometimes hampered by too many laws to administer, by the pressure of politics and by inadequate appropriations. Commissions strive for fair treatment, and where they are helpless to give it, where they are interfered with or blocked in their earnest endeavors, the public, industries, labor and security owners all suffer eventually.

I have great sympathy and respect for the Interstate Commerce Commission. Sympathy when Congress calls upon it for the impossible, respect and admiration for its devotion to a multitude of tasks. The pressure of the multiplicity of administrative laws tends to make regulation unwieldly and at times brings grave concern lest unsound policies may emerge from the welter of detail thrust upon the commission. Congress should find some way to relieve the commission. For example, real progress would be made if the commission were relieved from the adjudication of reparations cases, consuming so much of its time, and which could be placed in a separate section, possibly under the responsibility of additional commissioners, whose entire time could be given to such matters. After such measure of relief, there should be established a definite policy which recognizes the essential mutuality of interest between the public and the industries regulated.

As to Government Ownership

I take exception to the ideas expressed in the minority report on government ownership before this body at its last convention, which stated that "the policy of public ownership and operation must await gradual development under the slow processes of evolution."

We are in a period of changing conditions, at the cross roads, so to speak, and must decide whether we will enter upon the road toward government ownership or continue

* Abstract of Mr. Harrison's address.

in the path of private ownership. For my part, I would not take the former, which might seem to be the easier way. It is true that to travel the path of private ownership, and to maintain equilibrium between regulation and regulated industries will require greater intelligence and most scientific treatment. But the benefits to the public will be infinitely greater than under government ownership.

With the belief on the part of commissions that private ownership and its regulation can be brought to a state of equilibrium, they can maintain a fair return and encourage even greater efficiency and economy in operation. The consuming public will be the chief beneficiary of such a policy; the government will retain its taxing capacity; and the railroads and public utilities will be able to raise the large amount of capital necessary to keep pace with a continuance of the growth which has made our country preeminent among the nations of the world.

I can foresee the day when there will be many millions of individual owners of the securities of regulated industry because regulatory authority will assist in sustaining the confidence of the investing public. The facilities for security distribution are constantly expanding. It will not be long before almost every bank in the United States, in addition to private investment bankers, will be selling sound securities. Such securities should be as safe and as stable as any government bond. It is to the interest of all the people that it should be so. Fair and wise regulation will do much to bring about such a condition.

Abstract of Commissioner Aitchison's Address

The address of Clyde B. Aitchison, member of the Interstate Commerce Commission, comprised an analysis of the need for regulation of corporations engaged in any form of public service and a clear differentiation of what he defined as the administrative functions of government from the legislative and judicial functions. He also made a plea for a more considerate use of time on the part of those who present evidence before regulating bodies. Brief excerpts from his address follow:

Every commission represented in this association now has a broader and more varied jurisdiction than it possessed before the great war. Old problems largely persist, but added to them are novel questions which have grown out of increasing density of population and production, more far-flung commerce, new inventions, and the developments of old arts. Multiplication of population has been accompanied by even a relatively greater increase in the needs or standards of individuals and communities. Circles of individual activity have widened their diameters, and their centers have been crowded together.

When conflict and adaptation have worked out rules of conduct for one set of conditions, the progress of invention and development of the arts bring about new relations, for the settlement of which there is much complexity and little precedent. Neither legislature-made nor judge-made law can cope with such a situation. Quite gradually there has filtered all through the system of laws the device of administrative regulation. All curves which relate to any phase of our communal or national activities took a marked up turn with and after the war, and correspondingly the resort to the administrative agency for the determination of individual and group activities has been sharply upward in the recent years. This has been accomplished only by the affirmative acts of the legislatures and the executives, federal and state, with the encouragement and approbation of the judiciary. It has not come from action of the administrative officers themselves.

The administrative device succeeded well enough so it has been given a constantly wider application. It has been extended to virtually every form of human activity and conflict except certain of the commoner breaches of the peace and violations of private rights. In this respect we have been tending to a system which has long been accepted as the usual regime in continental Europe. Paradoxically, this extension of the scheme of delegations of administrative responsibility and power has been accompanied by a continual outcry against the rising tide of bureaucracy. For the vicious implications of the word bureaucracy there can be no defense; but the multiplication of administrative functions is to be defended, and for it the bold general assertion can be made that it is the result of proper recognition by the legislature of its duty to provide means for the administration of justice, in myriad situations which otherwise would go without remedy.

The will of the legislature thus is given daily effect in a multitude of matters which neither in time nor eternity could be dealt with by a parliamentary body. The already crowded courts have been given immeasurable relief. They retain sufficient control over the administrative agencies to insure general compliance with the laws of the land, and are able to correct manifest injustice, but the quantity of controversies taken over by these administrative agencies is so great that otherwise the courts could neither function as to such matters nor as to those which are exclusively judicial, and which the courts alone can enforce. The performance of quasi judicial functions by the administrative boards and officers has preserved the judiciary from completely bogging-down. The legislators and courts also know that this form of action brings the training and experience of disinterested experts to bear upon technical and complex problems, so that the solutions reached are more accurate than could be expected from legislators or judges who are not specialists. The administrative regulation is more adaptable to new situations and developing arts and sciences than can be either statute or common law. Trial and error is an effective way to perfect the application of laws to shifting or newly discovered conditions. Obviously the administrative tribunal, quick to learn from its own mistakes, or speedily set right by the reviewing court, can reach a correct solution more surely than can a legislature acting through the clumsy process of statute enactment and amendment, or the courts, which depend on past precedent and written words for guidance.

A simple test will show the importance and volume of matters handled by such administrative agencies. Take down a recent volume of the reports of the United States Supreme Court, analyze the important cases disposed of upon opinions; see how close to 50 per cent of all the matters passed upon by the highest court are concerned with the jurisdiction or action of administrative officers or agencies. They are usually civil matters, but they far outnumber the cases involving civil rights which have been heard only in the courts. A generation ago this test would not even have suggested itself. Without discussing whether this tendency is desirable or inevitable, the disproportion is growing.

Between the courts and the legislatures there has been a continuous race to control the policy of administration. The legislatures have sought to give flexibility, vest discretion to the procedure, and "cut red tape." The courts in reviewing the actions of the administrative tribunals have progressively tended to assimilate the procedure of such bodies to that of the courts, to which the legislatures often reply in turn by statutory amendment again relaxing the rule.

The bulk of our administrative controversies is getting almost unbearable. There seems to be occasion to test administrative procedure in particular cases by resort to fundamentals. The character of the functions of the administrative tribunals sometimes very closely approaches the purely legislative, again, they are almost indistinguishable from purely judicial functions. In between are all the shades of mixture which the spectrum affords. It is a mistake to assume the rigidity of judicial procedure must be imposed upon all administrative proceedings. In some cases, such is the case; in other instances, unnecessary delays and burdens would result, and justice would be defeated. The courts are latterly recognizing that this distinction in functions warrants and requires differences in administrative procedure. Compliance with the essentials of justice, rather than with the mechanics of procedure, is more and more becoming the test. The growth of business, its complexity, and the crowded dockets of the commissions, requires realinement of notions as to the essentials. The day has passed when every man can have his full say, without regard to the passage of time. To give him that right denies other men the right to have their grievances heard.

Whatever evidence is tendered should meet two tests: Is this necessary for intelligent disposition of the issue, and if so, is it the best way to show the fact. When the legislatures loaded a great variety and volumes of work upon the administrative tribunals, it was conclusively determined, in point of law, that subject to constitutional rights, the tribunals must adapt their procedure so as to accomplish all of their tasks, and not merely a part of them with meticulous fullness of detail; and that the parties adapt themselves to such a course of procedure as would not block the stream of justice.

The "Best Friend of Charleston"

THE four-wheel locomotive shown herewith is the "Best Friend", a replica of the first locomotive built in America to be used in regular railroad transportation; and the tender and two passenger cars shown with it are likewise reproductions of the first train on the line of the South Carolina Canal & Railroad Company, which made its initial regular run on Christmas day, 1830.

The locomotive and cars shown in the picture have been built at the Birmingham shops of the Southern Railway and the train, moving under its own power, is making a tour of some of the principal cities on the Southern Railway. The coaches were built in The Southern Railway shops at Hayne, S. C. The train started from Charleston, S. C., last Tuesday, November 20, carrying the mayor and members of the Board of aldermen out for a short distance. The train was scheduled to run only in daylight and was expected to reach Augusta, Ga., on Saturday, November 24, where the mayor and members of the city council were to be entertained as was done at Charleston. Celebrations more or less formal are to be held at various cities.

The original "Best Friend of Charleston" was designed by C. E. Detmold and was built at the West Point Foundry, in New York City, for the South Carolina Canal & Railroad Company, which is now the Charleston division of the Southern. The locomotive was taken to Charleston by ship and reached there on October 23, 1830. Its career was brief, for on June 17, 1831, its boiler was destroyed by an explosion. A negro helper had tied down the safety valve. Three men were injured in the accident.

The present engine weighs about four tons. Coal is used as fuel, instead of the pitch pine of 1830. It is 13 ft. 10½ in. long. Neither the locomotive nor any of the cars of 1830 had brakes but those shown in the picture have been fitted with hand brakes. On the tender (called service car,) the brakeshoe can be seen on the top of the leading wheel.

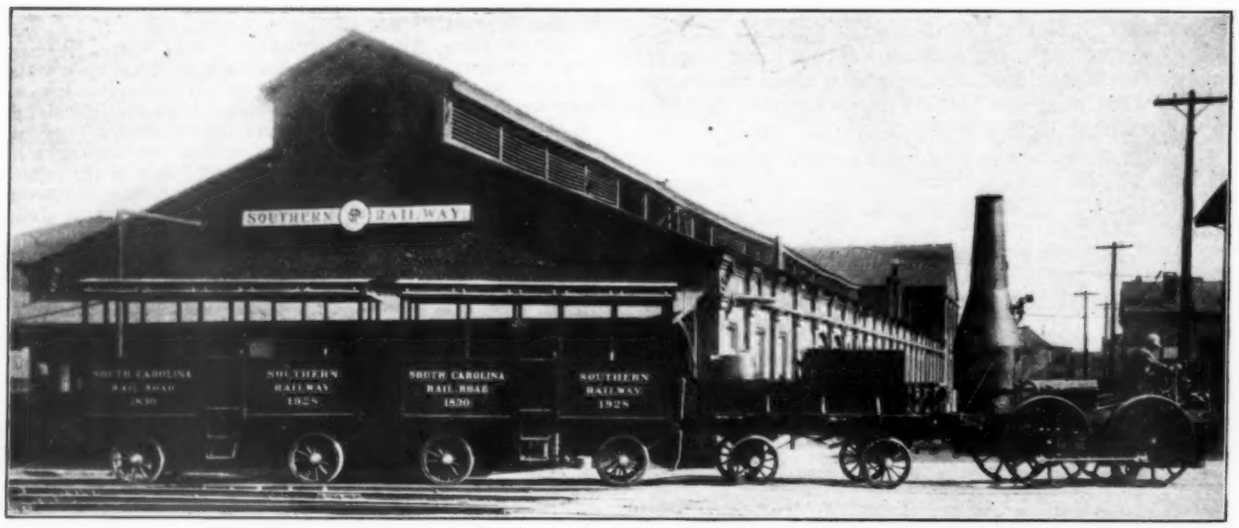
The two cylinders are 6 in. x 16 in. The boiler seems to have had no tubes but the firebox was surrounded by water, opening being provided at the sides permitting the escape of smoke and gas to the jacket surrounding the boiler.

The valve gear works automatically for forward movement, but to move backward it has to be manipulated by hand. The name plate of the locomotive not legible in the photograph, is just above the rear driving wheel. The main rod, inside connected, drives on the rear axle. The original engine was of 5 ft. gage. That was the standard gage in the Southern states prior to about 1885.

The passenger cars are 14 ft. long and each has a double bench extending the whole length of the car. The passengers sit back to back. There are curtains at the sides.

The South Carolina Canal & Railroad Company was chartered December 19, 1827, and the line was completed for seven miles in 1830; completed to Branchville, 62 miles in 1832 and to Hamburg, S. C., on the Savannah river opposite Augusta, Ga., on October 1, 1833. It was then the longest continuous railroad in the world, 136 miles long. It was also the first railroad to carry the United States mail.

Horatio Allen, who was a leading engineer of the time and who ran the "Stourbridge Lion" at Honesdale, Pa., in August, 1829, was chief engineer of the South Carolina road and supervised the construction of both roadway and machinery. Nicholas W. Darrell, who helped to set up the "Best Friend" in Charleston and who was a locomotive engineman for many years, was later promoted to the position of master machinist, in which position he served until his death in 1869.



The "Best Friend of Charleston" in the Twentieth Century

The places to be visited by the train in South Carolina beginning next Monday are scheduled as follows: November 26, Ridge Spring; 27th., Columbia, where there will be a celebration participated in by the Governor and state and city officials; December 3, Kingville and Sumter; 4, Camden; 5, Lancaster; 6, Rock Hill; 8, York and Blacksburg.

THE WESTERN UNION TELEGRAPH COMPANY has authorized an expenditure upward of $4,000,000 for the installation of additional simplex printed telegraph apparatus, which sum, it is said, will bring the company's investment in this class of machinery up to more than ten million dollars. About 75 per cent of the company's land-line business is now transmitted automatically. Tape printers have proved to be the most rapid and accurate means of handling message traffic on the great majority of the company's lines.

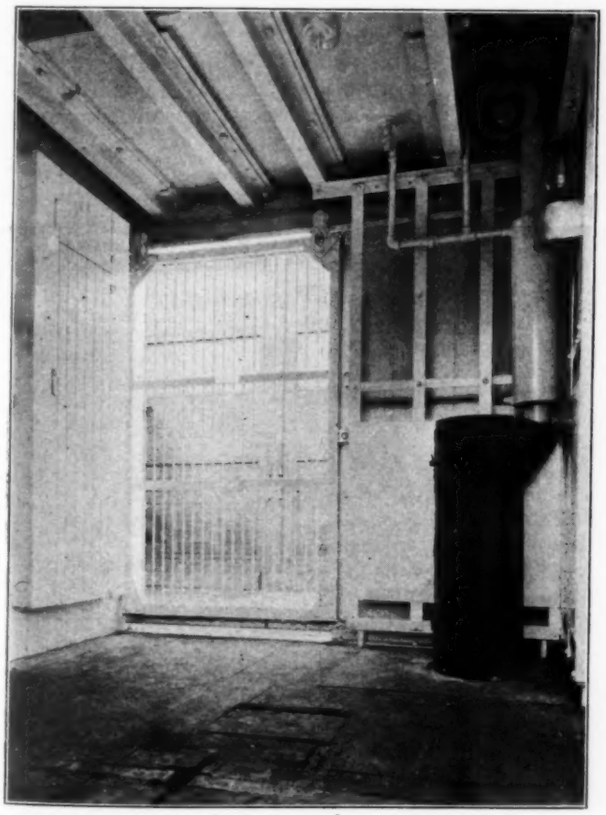
A Humane Live Stock Car

Provision for feeding and watering enroute—Partitions reduce piling and crippling

A LIVE stock car, recently designed and patented by I. V. Edgerton for the North American Car Corporation and built by the Standard Steel Car Company, embodies a number of features of more than usual interest, particularly the provision of three decks and arrangement for feeding the stock enroute without unloading.

The external design of this car follows closely the general lines of the live poultry cars of the Palace Poultry Car Company, owned and operated by the North American Car Corporation. The new car is especially designed for the shipment of sheep and lambs, although it is said to be suitable for other kinds of small live stock. The interior of the car is so laid out as to provide an aisle running lengthwise through the center of the car, in which water and feed troughs are conveniently arranged for all pens at each deck level. The inside length of the car is 36 ft. 6 in. At one end is a 6-ft. by 9 ft. caretaker's stateroom, underneath which is a submerged feed bin, providing ample storage for feed en route. There are also two steel water tanks with a capacity of ten barrels of water, located above the stateroom.

The car is tripple-decked and designed to accommodate the same number of animals as may be loaded in the ordinary double deck stock car. The animals can be evenly distributed on all three decks, where partitions, well placed, prevent piling and reduce crippling.



Caretaker's Room Equipped with Heater, Feed Bin and Water Storage Tanks

Interior View Showing Feeding Aisle with Water and Feed Troughs at Each Deck Level

The most important single feature of this triple-decked car is the opportunity it affords to feed en route without necessitating a stop in transit under the federal statute which requires unloading every 36 hours and a stop of 12 hours for rest, feed and water, unless satisfactory means are provided for feed and water in transit.

Will Eliminate Much Switching

This arrangement benefits alike the railroads, the shippers and the receivers. A large amount of switching and handling of the cars at feeding stations due to the present rigidly enforced regulation under the 36-hour law will be avoided; also the expense of intermediate loading and unloading, now borne by the railroads and at best involving great risk of loss on account of death, and damage claims resultant therefrom. Faster and more regular time schedules can be maintained where unloading at feeding stations is eliminated. Losses resulting from "piling" will be largely overcome by the partition arrangement. Much expensive train crew labor at feeding stations will be eliminated.

The shipper will receive a two-fold benefit by a large reduction in shrinkage en route extending beyond the natural intestinal shrinkage, as it is claimed that the new car will prevent tissue shrink. The animals will remain in the cars from shipping point to destination,

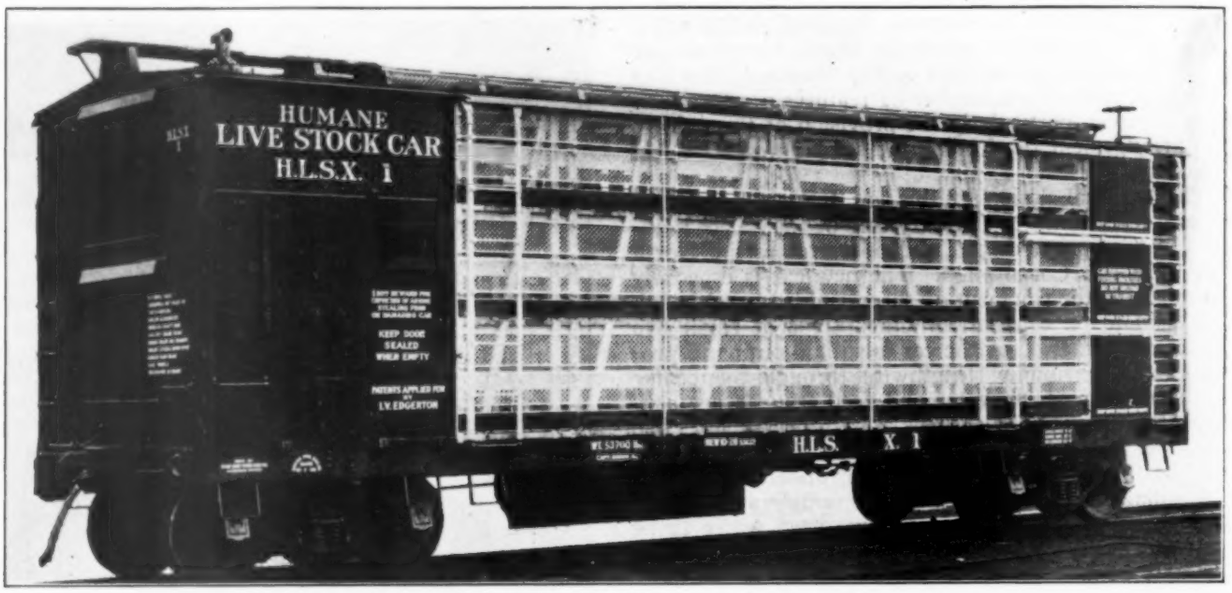
and soon become accustomed to their environment, undergoing practically no change between shipping point and destination.

Faster and more regular time schedules, maintained between points of shipment and destination, will result in savings of interest, insurance and similar expenses. What this will amount to may be judged by the fact that a shipment of lambs from California to Chicago, for example, under the present arrangement, must be loaded and unloaded five times for rest, feed and water, involving a delay of two and one-half days.

Owing to expedited delivery with the new stock car, the packer will receive the sheep and lambs in fresher condition and will be relieved of the expense and necessity of reconditioning the animals as it is claimed they will come to the packer in full "bloom", the tissue shrinkage being practically eliminated. Intestinal fills, which are largely artificial, will be minimized and the lambs will reach the packing houses in prime condition for killing.

The car has already been tested under load from Chicago to the eastern seaboard at which time a careful check was made in loading and unloading weights. A record of 70 per cent less shrinkage was said to have been made over the average shown by a large number of cars previously moved by the same shipper.

It is recognized that freshly slaughtered mutton and lamb is superior in quality and texture, and the methods of transportation and handling made possible by the newly designed car seem likely to place a quality product in the hands of the American consumer comparable with the renowned English mutton.



Triple-Deck Live Stock Car with Self-Contained Feeding F. cilities, Developed by the North American Car Corporation

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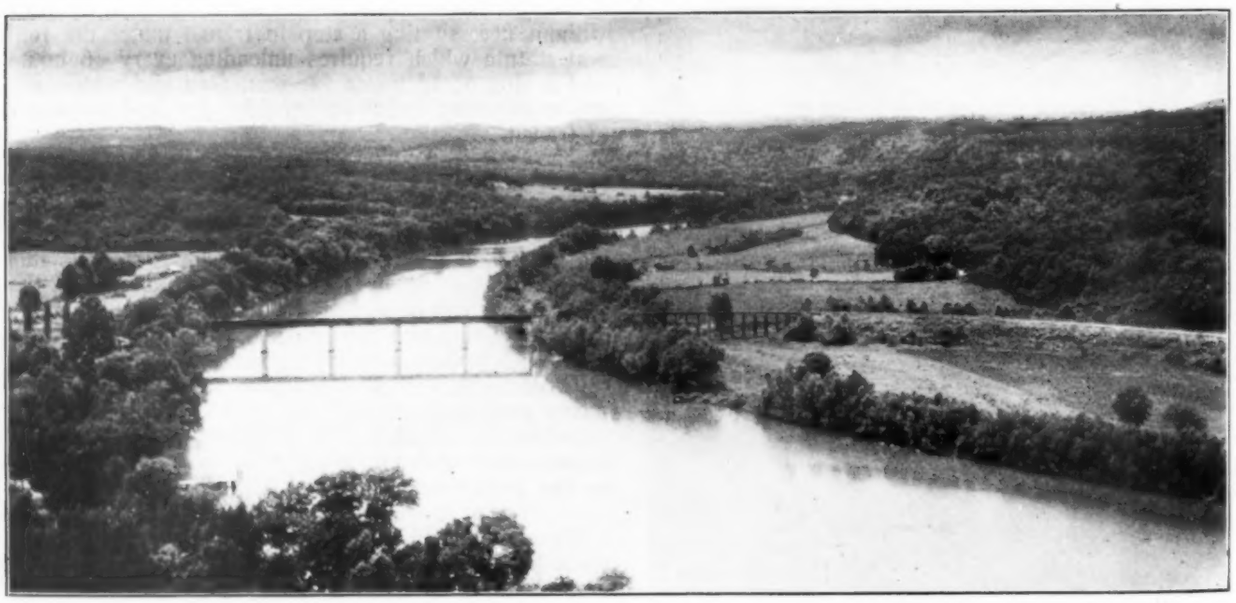


Where the Missouri Pacific Crosses White River, near Hollister, Missouri

Procedure Under the Barge Line Act

WASHINGTON, D. C.

THE Interstate Commerce Commission on November 17 made public a report, by Commissioner Eastman, interpreting the Denison amendment of the Inland Waterways Corporation Act, of May 29, 1928, as not contemplating hearings before the commission prior to the entry of orders by the commission, as directed by the amendment, requiring connecting rail carriers to join with a water carrier to which a certificate of public convenience and necessity for operation upon the Warrior and Mississippi rivers and tributaries has been issued in through routes and joint rates or fixing minimum differentials between such joint rates and corresponding all-rail rates or determining and establishing the equitable divisions of such joint rates. The act was interpreted as requiring a hearing prior to the granting thereunder of a certificate except in the case of present or future operation of the Inland Waterways Corporation under mandate of Congress, as to which the commission said that the question of public convenience and necessity is plainly foreclosed by law and that a hearing would be only an idle form.

The report was issued as the result of a proceeding instituted by the commission for the purpose of securing the views of interested parties with respect to the meaning and purpose of the provisions of section 2(e) of the act of May 29 amending section 3 of the Inland Waterways Corporation act of June 3, 1924, and also with respect to the procedure which the commission should follow thereunder, particularly with respect to the extent to which public hearings are required. Alfred P. Thom, general counsel of the Association of Railway Executives, in oral argument and brief contended that the Denison amendment is unconstitutional unless it can be interpreted as providing for hearings prior to the issuance of orders. The commission says that the constitutionality of what has been done is for the courts to decide but that the plain meaning of the legislation and the purpose of doing away with the necessity of prior hearings may be ascertained from the language employed by Congress.

Commissioner Woodlock in Concurring Opinion

Commissioner Woodlock, in a concurring opinion, said that it seems clear that Congress intended to establish a summary procedure in this matter but he expressed doubt as to the constitutionality of the amendment. Commissioner Brainerd, in a concurring opinion in which Commissioner Farrell also concurred, said that if complaint is filed by an aggrieved carrier before the commissioner's orders become effective, it would be the commission's duty to hear the complaint and decide the matter before the rates become effective. This procedure, he said, is necessary to comply with the requirements of due process of law.

Commission Will Proceed

The commission will proceed, the report says, with the consideration of the application of the Inland Waterways Corporation which has already been filed, and to the extent that hearings are not held will endeavor to secure in other ways such information as it deems requisite in the determination of such applications.

On the question of preliminary hearings the report says in part:

The intention is clear that once the certificate of public convenience and necessity is granted, the order directing the establishment of through routes and joint rates shall issue either contemporaneously or immediately thereafter. This is inconsistent with a procedure that would require a full hearing prior to the issue of the order. This inconsistency is confirmed, moreover, by the subsequent provisions, quoted below, which authorize us upon complaint and without the usual formalities to enter upon a hearing "covering (1) the reasonableness or lawfulness of any through route or joint rate filed pursuant to such order of the commission", and to give preference to the hearing and decision of such questions in order that they may be disposed of with the utmost expedition. Clearly, we think, it was the intent to substitute in this way subsequent hearings for prior hearings. This interpretation is further confirmed by the fact that the reference to paragraph (3) of section 15 plainly does not apply to the fixing of "reasonable minimum differentials", and that there is in that connection no similar reference which can be made the basis for a claim that a hearing is required.

In our opinion the reference to paragraph (3) of section 15 is for the purpose of describing and defining more definitely the through routes and joint rates which we are directed to require, and from the language of that paragraph we learn that they are to be such through routes and joint rates as we deem to be "necessary or desirable in the public interest." We further learn that they are to be through routes and joint rates with connecting carriers by railroad, for paragraph (3) has application to no other, and in this way any indefiniteness in the prior mention of "all connecting common carriers and their connections" is overcome. But for the descriptive reference to paragraph (3), through routes and joint rates between connecting water carriers and between water carriers and connecting motor-truck lines might be contemplated. The immediately following direction that we shall fix "reasonable minimum differentials between all rail rates and joint rates in connection with said water service" also makes it clear that the latter shall be fixed in terms of a relationship with the corresponding all-rail rates, i.e., that we shall fix a minimum spread which shall persist even if changes are made in the level of the rates. Provision for possible changes in level is made in the succeeding sentence. * * *

In our opinion the only rational interpretation of the above-quoted provision is that it is an attempt to substitute for hearings prior to our orders establishing through routes and joint rates, fixing minimum differentials, and prescribing equitable divisions, subsequent hearings upon complaint. Otherwise the provision would in its entirety serve no substantial purpose, for, as we have already pointed out, section 16a of the interstate commerce act makes full and ample provision for the rehearing of decided cases and the modification or entire reversal of any orders which may have been entered therein. It is true that in the language above quoted provision is made for preference and expedition, but such a provision could as well have been directed to rehearings under section 16a of the same classes of cases. It is also provided that the burden of proof shall be upon the carrier or carriers making the complaint, but in the case of a rehearing under section 16a the burden of proof would in any event be upon the party seeking to show that our decision was wrong or that our order should be changed. The interpretation which we have indicated is further confirmed by the provisions for preference and expedition in hearings and decisions and for dispensing with certain formalities prior to hearings. The need for such provisions, if the legislation requires full hearings prior to the entry of the original orders, is not apparent. * * *

No other portion of section 3(e) of the amended act calls for consideration at this time, except the final sentence, reading as follows: "Joint rail and water rates as herein used shall be deemed to include every movement of traffic in which a water line can participate."

This provision is descriptive, in our opinion, of the general class of joint rail and water rates which we are given authority to establish. They are to relate to the movement of traffic in which it is physically possible for the water line in question to participate, and do not embrace, for example, joint rates which could only be made effective by the establishment of switch connections or terminal facilities not yet in existence. The sentence, when context and the legislation as a whole are considered, is plainly not to be construed as meaning that we must establish joint rail and water rates covering every movement of traffic in which it is physically

possible for the water line to participate. Such a construction would be inconsistent with the reference to section 15 (3) which we have already discussed.

It will thus be seen that we are of the opinion that the language of the section in question, so far at least as procedure is concerned—and that is all with which we are now concerned—conveys a plain meaning and that it is unnecessary to resort to extraneous sources of information in order to decide between conflicting possible interpretations. If, however, it were thought that any such necessity exists, reference to the reports of the legislative committees would resolve any doubt in favor of the above interpretation.

It has been suggested that even if hearings in advance of our original action are not required, we might nevertheless hold such hearings as a matter of discretion. Those who have made suggestions of this sort have indicated that they have in mind brief hearings in which the introduction of evidence would be strictly limited. It is probable that they have not had occasion to become thoroughly familiar with the many pertinent and relevant questions which arise in the hearing of cases involving the establishment of through routes and joint rates over water lines and connecting railroads, the fixing of differentials between such rates and corresponding all-rail rates, and the prescription of equitable divisions. Such a limitation of evidence as they have in mind we conceive to be impracticable, and prior "full hearings" would plainly be destructive of the manifest intent of Congress. In this connection we may say that before this legislation was enacted we endeavored to demonstrate to the House Committee, and believe that we did demonstrate, that there has been no unreasonable delay in the decision of cases involving the establishment of through routes and joint rates between the Inland Waterways Corporation and connecting rail lines or the fixing of the equitable divisions of such rates, but that on the contrary these cases have for the most part been handled very promptly.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading during the week ended November 10 amounted to 1,053,295 cars, a decrease of 50,047 cars from the preceding week caused by smaller loading of all classes of commodities, ore excepted. The total for the week was 78,161 cars over loading in the corresponding week of last year and 53,594 cars under the total in the corresponding week of 1926. As compared with a year ago loading of livestock only showed a decrease and as compared with two years ago grain and ore were the only commodities to show an increase in loading. Loading in the Southern district showed a decrease as compared with a year ago. Loading in all districts, with the exception of the Northwestern, showed a decrease as compared with loading in the corresponding week of 1926. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

Revenue Freight Car Loading

Week Ended Saturday, November 10, 1928

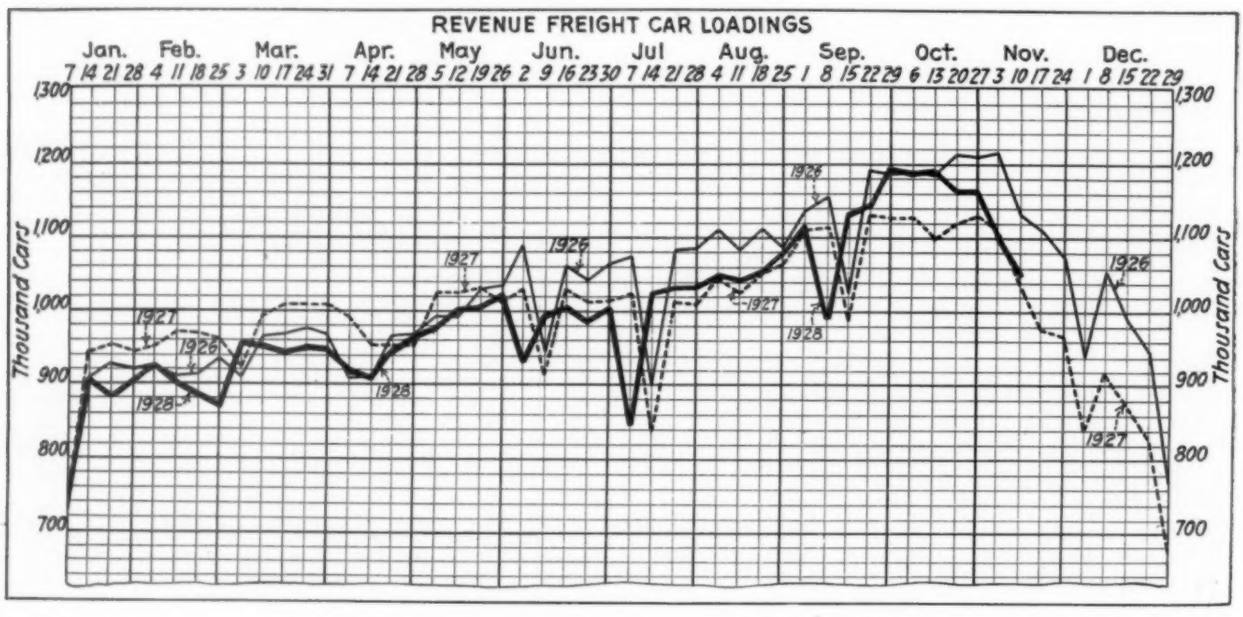
Districts	1928	1927	1926
Eastern	236,198	211,569	248,696
Allegheny	218,475	193,295	231,571
Pocahontas	55,567	51,694	64,620
Southern	151,054	151,599	161,601
Northwestern	149,788	130,841	148,019
Central Western	157,345	153,209	163,856
Southwestern	84,868	82,927	88,526
Total West. Dists.	392,001	366,977	400,401
Total All Roads	1,053,295	975,134	1,106,889
Commodities			
Grain and Grain Products	49,356	45,124	44,602
Live Stock	31,280	36,314	38,160
Coal	193,434	171,560	241,942
Coke	10,726	8,903	12,957
Forest Products	64,024	62,656	67,457
Ore	48,379	18,836	37,850
Mdse. L. C. L.	261,768	258,776	266,049
Miscellaneous	394,328	372,965	397,872
November 10	1,053,295	975,134	1,106,889
November 3	1,103,342	1,039,075	1,131,832
October 27	1,161,976	1,112,816	1,208,878
October 20	1,162,095	1,129,055	1,200,941
October 13	1,190,127	1,120,007	1,202,780
Cumulative total, 45 weeks	45,074,562	45,651,835	46,598,877

The freight car surplus during the period ended November 8 averaged 129,151, as compared with 105,017 cars on October 31. The total included 64,532 box cars, 31,568 coal cars, 18,852 stock cars and 6,577 refrigerator cars.

Car Loading in Canada

Revenue car loadings at stations in Canada for the week ended November 10 amounted to 93,514 cars, a decrease from the previous week of 1,752 cars, and an increase of 17,060 cars over the same week last year which contained a holiday.

	Total Cars Loaded	Total Cars Rec'd from Connections
Totals for Canada		
November 10, 1928	93,514	39,810
November 3, 1928	95,266	42,301
October 27, 1928	97,777	43,074
November 12, 1927	76,454	31,499
Cumulative Totals for Canada		
November 10, 1928	3,191,212	1,781,008
November 12, 1927	2,913,166	1,686,486
November 13, 1926	2,800,865	1,685,253



Railway Business Association

President Willard urges real trial for Transportation Act — Association asks business interest in railway earnings, budgeting, five-year recapture

THE Railway Business Association held its twentieth anniversary annual meeting and banquet at the Hotel Commodore, New York, on November 21. Among the important proposals advanced for consideration and adopted in the form of resolutions were: A call to business men to support the railroads in their effort to maintain adequate income; a condemnation of legislative interference in rate making; support for freedom of the Interstate Commerce Commission from political pressure and an increase in salaries and a lengthening in terms of commissioners; amendment of the recapture clause to apply over a five-year period; a renewal of the plea to the railroads to budget capital and maintenance expenditures on a five-year basis; and an acknowledgement of the seriousness of the problem of highway and waterway competition.

At the business session, C. A. Heiss, comptroller of the American Telephone & Telegraph Co., presented an address on the telephone companies' budgets. Mr. Heiss explained the thoroughness with which these companies study not only their own operations but those of all other industries, with the result that they are able to anticipate the volume of business and the details of their programs of expansion with a percentage of error well under 5 per cent. An abstract of this paper will appear in an early issue of the *Railway Age.*

At the same session F. W. Keough, representing George Eastman, gave an exposition of the proposed thirteen-month calendar, and the association decided to take a letter ballot of the membership to learn their opinion on this innovation.

Next Year's Meeting in Chicago

It was announced that the next meeting of the association, a year hence, will be held at the Hotel Sherman, Chicago.

At the election of officers, two new vice-presidents, J. W. Bettendorf and Dwight P. Robinson, were chosen. The other vice-presidents are M. G. Truman, W. L. Conwell, George A. Marvin, F. N. Bard, and Charles J. Graham. President Alba B. Johnson, Secretary Frank W. Noxon and Treasurer P. Harvey Middleton were re-elected.

At the dinner speakers were Daniel Willard, president of the Baltimore & Ohio, Robert C. Fulbright, chairman of the legislative committee of the National Industrial Traffic League, the Hon. Myron T. Herrick, Ambassador to France, and Emeritus-Professor Albert Bushnell Hart of Harvard University.

The report of the association's general executive committee, the resolutions, the comments of Secretary Noxon upon these resolutions and the address of Mr. Willard are presented in abstract below.

General Executive Committee Report

Our association faces a complicated situation.

Highway and waterway competition are causing the railways uncertainty as to the future and will evidently force important readjustments in the character of railway service. The course of effort toward railway unifications in Congress and before the Interstate Commerce Commission adds to the uncertainty. For the moment by rigid curtailment of expenditures some railways have been showing increased net earnings, but this is in a period of shrunken passenger and almost stationary freight traffic, when freight rates have steadily declined.

Political Pressure in Regulation

Notwithstanding these portents, business men generally seem to imagine that no trouble need be feared. Rarely have we had reports of so wide-spread pressure upon railways by shippers for rate reductions. Having as an association urged shippers to refrain from political pressure upon the Interstate Commerce Commission, we regret to report that never has pressure gone to such extremes as within the past few months. Through legislation also business men are setting advocates of radical measures an example by going over the Commission's head to Congress. An outstanding example is the effort for Congress to forbid an addition to the railroad fare when passengers ride in parlor and sleeping cars, the so-called Pullman surcharge, which after prolonged investigation the Commission sanctioned. Where this bill would deprive the roads of $40,000,000 a year other measures are being pressed for changes in the rate-making rule avowedly intended to deprive them of hundreds of millions. If any of these should attain momentum, a business movement to stop it would have to be improvised. None now exists.

Under these circumstances your committee has deemed timely an activity to arouse and remobilize business men. According to our practice we waited for the Presidential campaign to end, and using the Pullman surcharge bill as the occasion, mailed November 5 a request to members for cooperation. To resist this measure we are in co-operation with the National Industrial Traffic League. We hope for active response from local, state and national bodies all over the country. Especially do we count upon our members and friends to take the subject up with their salesmen, well situated to discuss the economics of the proposal with commercial travelers, whose organization sponsors it.

The last time it came to a vote, the bill bearing the name of the late Senator Gooding, depriving the Commission of its discretion to grant shippers relief from the long-and-short-haul section, was fought by our association in alliance with the National Industrial Traffic League and defeated in the Senate, turning a two-thirds vote in favor of it in an earlier session into a two-thirds vote against it. If this measure is pressed for action again we shall work as before with the Traffic League.

Almost the whole industrial shipping and quite the whole railroad world is hostile to the Hoch-Smith resolution, of which an Interstate Commerce Commissioner in an address recently said that the task required "could not be performed in 100 years by 100 Solomons." The resolution ought never to have been passed. An im-

portant rate reduction, however, on California shipments of deciduous fruits was sanctioned by the Commission on the stated ground that a reduction denied previous to the Hoch-Smith resolution was proper under that instrument, and on appeal by carriers the resolution is on its way through the courts for interpretation. We have regarded it as but due respect for the courts to postpone consideration of repeal until after a final decision.

Less Interference With I. C. C.

Members are familiar with the rate contest between competing producers in two localities, in the course of which one Commissioner has been denied re-appointment, while two others—a new candidate and an incumbent reappointed—have been rejected by the Senate. From the inception of this struggle for control of the Commission your president has closely observed its course and in correspondence and otherwise earnestly remonstrated with those on both sides as one or the other was engaged in the attempt to remove or replace a commissioner because of dissatisfaction with his vote. Our association has been the most active body in the country in pleading for protection to the Commission against attacks upon its independence. Your committee recognizes the urgent desirability of steps intended to end the process of alternating decapitations in the case alluded to and to prevent the spread of this practice to other industries and regions. It has been proposed to strengthen the Commission by increase of salary and by making the term long enough to eliminate shippers' threats of defeat for reconfirmation against a Commissioner whose term is about to expire. We recommend that the association, repeating its insistence that pressure upon the Commission shall cease, should urge increase in salaries and lengthening of terms.

Your committee agrees with the railway executives that with railway unifications under debate, amendment of Section 15a, the rule of rate-making, may best await the outcome of that discussion. There is one amendment, however, which is very important to our industry, and in which the executives concur for immediate action. This is to make recapturable income computable not annually as now but on a five-year average; a change which would permit the creation of reserves earned in good years to be spend for maintenance in poor years. We are recommending a resolution favoring this change.

Maintenance of Rates

A year ago in response to a request for data on methods of forecasting facility needs and revenue requirements and of adjusting rates accordingly, the Interstate Commerce Commission through its chairman informally analyzed these aspects in a letter to us. This we published under the title "Rate Regulation as the Commission Sees It." The Commissioners there suggested that the railways might improve their situation by "nation-wide studies," and by their own initiative in rate adjustments for revenue. Since then in correspondence and conversation others interested in transportation have proposed fuller co-operation among the railways in the maintenance of revenue. The *Railway Age* for October 27 suggested the establishment by the railways of a joint agency or agencies for that purpose. To the *Age* for November 3 President Johnson contributed an article, "A Railway Concert for Maintenance of Rates," advance copies of which were distributed to members and to railway officials.

Highway and waterway competition has created a problem requiring research and study. Endeavoring to forecast tendencies in these new fields, the railways must shape a course in the adaptation of their service and facilities to the new conditions, including the coordination of supplementary services with their own. The American Railway Association has created a Motor Transport Division and assigned studies to its Mechanical Division. Recognizing that railway supply manufacturers are deeply interested in these problems, we have arranged to follow systematically the accumulation and analysis of data and views by these research units, reporting from time to time to the members.

"The Railways' Financial Outlook"

By Frank W. Noxon
Secretary, Railway Business Association

Twenty years ago at about this time of year a well-known railway economist was asked by an officer of this then infant association to define the railway problem. He did it in one word—"Income."

That was the problem then. It is the problem now. It always will be the problem so long as the expense of transportation is borne by travelers and shippers and not by tax-payers. You have railways built, enlarged and improved with the capital of citizen investors. You have Congress adopting as one of the aims of rate regulation adequate enlargement of facilities and hence an opportunity for the roads to realize income sufficient for that purpose. You have the Interstate Commerce Commission responsible by law and the railway managers responsible to all concerned for such rate development as will tend to underwrite satisfactory service in the future. But you have the traveling and shipping public agog with anxiety about facilities when shortage stares us in the face, as in 1920, and almost wholly oblivious to the future when for the time being, as now, service is dependable. During periods of slow traffic growth, of apparently automatic railway service—and this has been the trend since 1920—you have travelers and shippers throwing foresight on the scrap-heap and demanding either general rate reductions, like those of 1922, or reductions for certain industries, such as agriculture under the Hoch-Smith resolution, or particular reductions in competitive freight situations; and at present we are engaged in an effort to prevent commercial travelers from taking $40,000,000 from the railroad fares paid by riders in parlor and sleeping cars on the ground, among others, that the railways do not need the money. All this is always without any yardstick, real or imaginary, of how much money the railways do need or any recollection of the calamity which would befall travelers and shippers if these carriers were financially unable to prepare for and maintain American standard service.

Before discussing income the Committee proposes that you congratulate the railways on the service which they have been giving. In response to my inquiry whether shippers' complaints were as near to nothing as in recent previous years M. J. Gormley, Chairman, Car Service Division, American Railway Association, writes: "There have been no serious car shortages in 1928. Those that did exist were in emergency situations and in no case lasting over two or three days. No complaints whatever have been received from shippers in any territory with respect to car shortage." Replying to a similar inquiry Interstate Commerce Commissioner Frank McManamy, in charge of the Bureau of

Service, states: "We do not receive a report of all informal complaints which are handled by the field force of our Bureau of Service, but from complaints which we do receive I should say that there has been no greater impatience over delay in getting cars and deliveries in 1928 than in previous years."

Railroads Three Billion Short of Fair Return

The second resolution cautions against over-confidence in the railways' financial future. Against this it warns industrial, commercial and financial concerns and associations, which it urges to study the problem anew, reviving the active cultivation of a more steadfast solicitude and a public-spirited cooperation with the railways and the Interstate Commerce Commission. The timeliness of the warning is made clear by striking figures. Estimating 1928 from the months already reported, in the eight years since the Transportation Act the amount by which income fell short of 5¾ per cent is a trifle under three billions.

The reason for this is set forth in a third resolution, discussing the maintenance of rate levels. If the average receipts per ton-mile in 1921 had been maintained to date, railway income in the eight years would have aggregated four billions more than it did, or one billion above 5¾ per cent instead of three billions below it. The previous resolution pronounces 5¾ per cent none too high. In the O'Fallon Railway case a dissenting commissioner remarked that the capital which has been poured into the properties since the owners received them back had been invested on faith in the purpose of the government as expressed in the Transportation Act and as interpreted by the Commission in fixing 5¾ per cent as the income to be aimed at in rate regulation. The plain intimation was that such a flow of capital could not go on indefinitely if the governmental pledge proved faithless.

Government Should Redeem Its Promise

Your committee regards it as vital to the national welfare that the promise of the government be redeemed. A year ago in the course of correspondence with us the Interstate Commerce Commission informally suggested that the railways "initiate nation-wide studies" with a view to bringing the rate structure more nearly in line with the requirements. The *Railway Age* has recently suggested that the railways create a permanent agency or regional agencies to promote the maintenance of rate levels through cooperation among the railways themselves, through efforts to cultivate a foresighted attitude on the part of shippers and through response to the invitation of the Commission for "nation-wide studies." Commenting on that article, President Johnson discussed the project in some detail in an article in the *Age*. The resolution expresses the opinion that the railways would be justified in creating such an agency.

Upon other phases affecting income, the resolutions as submitted to you reiterate in detail our opposition to legislative rate-making, and against pressure and threats upon Interstate Commerce Commissioners for rate decisions contrary to their judgment. It is urged that the Commission should be strengthened by making service upon it more attractive in salary and tenure.

A vital factor, of course, in the income situation is Section 15a of the Transportation Act, the rule of rate-making. When it was enacted this provision was a compromise containing features upon each of which opinion still differs. In the nature of things experience would bring amendment. Section 15a, however, has this peculiarity—that it was agreed upon as essentially a stop gap, the necessity for which its draftsmen believed would disappear upon the accomplishment of the railway unifications to which also the Act looked. Many who would like amendment of this or that feature prefer to go through the process once rather than twice, and are awaiting the outcome of the long-drawn-out endeavor for unifications. The resolution on this point as submitted to you reiterates that we see no present reason for amendent but repeats also one exception. This is to lengthen to five years the period, now one year, over which income is computed for purposes of recapture. Remarking that the annual computation obstructs the stabilization of railway purchases, the resolution urges Congress to make maintenance reserves possible by directing the Commission to recapture income in a given year only where 6 per cent is exceeded in that year and was exceeded on the average in the preceding four years. It is understood that this amendment will be inserted in a bill now before Congress exempting short lines from recapture. On behalf of the short lines on this point it is argued that many of them exist because of temporary traffic, which will discontinue upon exhaustion of forest, mine or other resources or upon completion of engineering works, thus extinguishing the carrier.

Resolutions

I

Non-government Service Satisfactory

With autumn of 1928 showing carloadings but little under the four weeks' record, our railways have continued giving shippers the satisfaction which has prevailed in each year since their Regional Advisory Boards have cooperated. We congratulate both shippers and railways. The surest way for officers of government to break down that standard of service is to threaten attacks upon these carriers. The public is served. The national aim should be to preserve the non-government systems under which that service has developed. National policies should be pursued under which the railways will command adequate capital and ability.

II

Business Men's Responsibility

Our national prosperity is in danger from over confidence in the financial future of the railways. This false sense of security pervades our industrial, commercial and financial associations. Seeing service on a new high plane, they seem to imagine that this can be maintained indefinitely on the current annual average input of new capital. Observing three quarters of a billion invested annually on the good faith of the government, they apparently have forgotten that the promise in the Transportation Act is nul and void unless it is redeemed. Business men know that the country requires railways equal at all times to increased traffic demand. They know that the shippers' hope as to rates lies in the progressive installation of improvements for operating economy. They live as if they believed that the development of such carriers and of such progress is automatic under the Transportation Act. The fact is that railway income persists below the lawful level. The Interstate Commerce Commission declared its aim to be 5¾ per cent on the property value. Eight years have passed. In none has income reached that percentage upon the property investment. For the whole period the deficiency, estimating the balance of 1928, is but a trifle under three billions. We call upon shippers and travelers to revive the spirit of enlightened selfishness and foresighted cooperation. We urge business bodies to survey the situation anew and to authorize activity for promotion of the common defense against railway unpreparedness and the common cause of modernization for railway economy. For such a remobilization of business men the Railway Business Association pledges unremitting endeavor.

III

Maintenance of Rate Levels

If the average receipts per ton mile in 1921 had been maintained to date, railway income in the eight years would have

aggregated four billions more than it did, or one billion above 5¼ per cent of the property investment instead of three billions below it. The decline in the rate level is not pursuant to any estimate or plan. Rate adjustment has no systematic relation to total revenue needs. Rates drift, and tend constantly downward. Respecting rate levels the Interstate Commerce Commission has informally indicated its readiness to consider facts and conclusions if the railways "initiate nation-wide studies to develop data." From such studies the several elements involved might progress into voluntary cooperation for the maintenance of the rate structure at a well considered level. To that end, in our judgment, the railways would be justified in the establishment of a joint organization to coordinate the work of railways, shippers and regulatory bodies.

IV

Attempts at Statutory Rate Making

Responsibility having been placed upon the Interstate Commerce Commission for rate regulation equitable both to shippers and travelers and mindful of the need for enlarging and improving facilities, Congress should forbear to regulate rates by statute. We oppose legislation for the reduction of railroad fares of passengers riding in parlor and sleeping cars, at present collected through the Pullman surcharge. We are against taking from the Commission its discretion to grant relief under the long-and-short-haul section. The Hoch-Smith resolution is class legislation, it overwhelms the Commission with an endless and impossible task, it afflicts shippers all over the country with an indefinite freezing of rates requiring immediate adjustment, and it deprives the carriers of needed revenue without provision for any compensatory offset. When the Supreme Court shall have interpreted this resolution in a case now pending, Congress should consider its repeal.

V

Pressure upon the Commission

The struggle for control of the Interstate Commerce Commission by particular groups should cease. The Commission must be protected against efforts at intimidation from any quarter and through any channel. If its work is ever deemed unsatisfactory the remedy lies in steps to strengthen the personnel by making their arduous labors more endurable, thus attracting and retaining men of high type. Commissioners' salaries, now $12,000, should be increased. To do away with pressure by litigants upon Commissioners near the end of their terms through threats of defeat for re-confirmation, the term, now seven years, should be lengthened to a period corresponding with the current actual average service. Pressure from any source should be avoided. In confirmation hearings Senators should abstain from disclosing the views which they desire nominees to embrace. Officials in the executive department should refrain, as if the Commission were a court, from acquainting Commissioners with their views upon issues pending.

VI

Reserves for Maintenance

We see no present reason for amending Section 15a of the Transportation Act, the rule of rate-making. We except, however, the legal requirement that computation of railway income for the purpose of recapturing half the excess above 6 per cent shall be annual. This provision obstructs the stabilization of railway purchases, which if realized would tend to retard or prevent industrial depressions and to foster recoveries. Congress should clear the way for the creation of reserves earned in good years to be spent on maintenance in poor years. This can be done by directing the Commission to recapture income of a carrier in a given year only where 6 per cent is exceeded in that year and was exceeded on the average in the preceding four years.

VII

Highway and Waterway Competition

Believing that the railways will indefinitely continue to perform the greatest part of all land transportation and to a great extent co-ordinate with themselves the complementary services now evolving, we observe with concern the reasons for perplexity and anxiety concerning highway and waterway development which disturb the railway executives. These new forms of competition present serious problems as to coming changes in the quantity and character of railway service and facilities. As railway supply manufacturers we are grievously afflicted whenever uncertainty for the future occasions hesitation and postponement in railway preparations. We are deeply interested in finding out the meaning of these tendencies. The conjectures, forecasts and ventures of every one concerned can be made more intelligent and dependable by competent assembly of the underlying facts and current views. We welcome the recent establishment by the American Railway Association of a Motor Transport Division and research activity in its Mechanical Division.

VIII

Five-year Budgets

We renew our suggestion that the railways consider five-year budgets of capital and maintenance. In financing this would promote foresight and hence thrift. It would tend to stabilize purchases more evenly over the years, enabling equipment and supply manufacturers to operate more economically, thus favorably affecting the roads. Stability would make industrial employment and general prosperity more stable, lessening the fluctuation in railway earnings. Capital requirements would be more vividly and persistently in view, a constant reminder of income as a factor in the investment inflow, and so a steady influence upon railway officials, shippers and commissions in considering rate adjustments. Some analogy is afforded by the 24 Bell telephone companies' budgets, study of which is recommended to the railway managers.

Transportation Act Should Have a Real Trial

By Daniel Willard
President, Baltimore & Ohio

The Railway Business Association in various ways and at different times, through the action of its officers, as well as of its individual members, has contributed helpfully towards securing legislation of a constructive and forward-looking character.

A year ago, on a similar occasion, Fred W. Sargent, president of the Chicago & Northwestern, and the speaker of the evening, took as his subject the question: "Are We Drifting Back Again?", meaning "Are the *Railroads* Drifting Back Again?" Mr. Sargent held that the tendencies at that time indicated a drift on the part of the railroads back to conditions such as existed before the war, and his conclusions seemed fully justified by the illustrations and the arguments with which he supported them. But if there had been any doubt at that time concerning the right answer to his question, in my opinion there can be no doubt concerning the correct answer at this time. Results and tendencies clearly show that the railroads are gradually, but none the less definitely, drifting back in the direction of the conditions existing before the World War, at the time, we will say, of the Five Per Cent Rate Case in the Eastern Region. In that case, which was decided in 1914, the Commission found and definitely announced that:

> "We have reached the conclusion that their (the railroads') net operating income is insufficient and should be increased."

After the termination of the war the President, in a message to Congress, pointed out that the war having ended, the purpose for which he had taken over the railroads in the first instance had been accomplished and he was therefore prepared to turn the properties back to their owners, but he was certain, so he said, that it would be a mistake to do so under the system of regulation which had been in effect before the war and under which they would have to be restored to their owners unless Congress provided otherwise by suitable legislation. Consequently the President announced his purpose of retaining the control and operation of the carriers until the first of March, 1920, in order that Congress might have ample time to study the subject and provide by appropriate legislation for the proper regulation of the railroads in the future. I doubt if Congress ever investigated any subject more fully or

exhaustively than the railroad problem was investigated before the passage of the Transportation Act as we have it today.

Credit Necessary for Adequate Service

It was recognized also that the crux of the railroad problem under private ownership was the question of credit. Experience of the past showed that certainly not less than $500,000,000, and preferably a substantially larger sum, should be spent by the railroads as a whole each year for new and additional facilities and equipment, and under our system such enlargement of plant could only be provided for by new capital raised in large part upon the credit of the carriers. The credit of the roads, of course, depends very largely upon the net earnings, and the net earnings are in large measure, dependent upon the charges which the railroads are permitted to collect. Congress, therefore, decided to put in the new Transportation Act a definite rule for rate-making for the guidance of the Interstate Commerce Commission. The rule to which I refer is embodied in what is known as Section 15-a of the Transportation Act, which says in effect that the railroads shall be permitted to earn a fair return upon the fair value of their property used for transportation purposes.

Congress even went further and set up for the guidance of the Commission a standard of fairness to be observed by the Commission in the fixing of rates. The Commission has determined upon a tentative valuation —perhaps it would be more correct to say upon a tentative basis for rate-making purposes— and has also decided and announced what, in its judgment, would be a fair rate of return per annum thereon.

In this connection it should also be kept in mind that it is specified in the act, as a part of the new rule for rate-making, that if during any one year any individual railroad should earn from rates so fixed more than 6 per cent upon the value of its property devoted to public use, one-half of such excess shall be paid over to the proper agency of the United States.

You will frequently, or perhaps I should say occasionally, hear it said that the Transportation Act of 1920 contains a definite guarantee that the railroads shall receive some certain fixed percentage each year upon the value of their property devoted to public use. The act really says nothing of the kind. No guarantee is given or implied. As a matter of fact, in not one single year since the law became effective have the railroads of the United States as a whole earned the rate of return which the Commission had said would be fair upon a valuation also fixed by the Commission itself, plus subsequent capital expenditure. If there were in fact a guarantee the railroads would have a claim against the government at this time of upwards of two billion dollars, which the government would be obligated to pay.

This rule of rate-making has been in effect nearly nine years, and we are now in position to form an opinion as to how it has worked, based upon an examination of the results that have been achieved.

Transportation Act Should Have a Trial

While, undoubtedly, the Transportation Act, as we now have it, has its imperfections and is not such a law as some would like to see as the basis of our governmental policy of regulation, I venture to think and to say that with all its imperfections it nevertheless affords, when soundly administered, the best basis for an intelligent and effective regulation of the steam railroads that has so far been developed in this country. I urged its passage and I now urge its retention without change until our experience with it shall more definitely suggest in what manner, if at all, it may be changed so that it will best promote the public interest.

It is a matter of common knowledge that when the railroads were returned to their owners at the end of federal control, the physical condition of many, if not all of the properties was below the standard of maintenance which good practice demands, and partly on that account and partly because of insufficiency of equipment and facilities, and for other reasons, the roads for the first two or three years after the termination of federal control were not able to furnish to the shippers and receivers of freight the adequate and satisfactory service which the law was intended to bring about. Industrial and economic conditions had been much upset by the war, but in 1923 sufficient progress had been made towards economic stability so that the railroads felt justified, under the new rule of rate making, in adopting and announcing a definite program for improvements which contemplated the expenditure of not less than one billion dollars during the following twelve months. That program was taken up vigorously by all the carriers and since the termination of federal control the railroads as a whole, have spent over five billion dollars of new capital for additions, extensions and enlargements of their transportation facilities. One result that has followed from the carrying out of that program is this: During the last four years the railroads of the United States collectively, and as a whole, have been able to furnish and have furnished a more adequate, a better and more dependable service than ever before, and that, too, at rates which relatively, though not actually, are lower than they were before the war. It would seem, therefore, that the public, at least, has realized under the Act what the framers thereof had expected would come about; that is to say, they have received adequate service at reasonable rates.

Inadequate Service Brings Economic Waste

The real significance of this fact will be better appreciated when it is remembered that it has been repeatedly said by men whose words were entitled to serious consideration that the lack of adequate rail transportation facilities in times past has inflicted upon the people of this country a loss of more than one billion dollars in a single year.

When Congress framed the Transportation Act, careful consideration was given to the needs of the railroads for new capital in order that the enlarged facilities might be provided which it was believed would be needed for the growing business of the country. It was felt by Congress that if rates were fixed so as to yield, with efficient and economic management, such a return as indicated in Section 15-a, the new capital required might be obtained from investors at reasonable interest rates, and it is true that during the eight years since the passage of the act the railroads have raised more than five billion dollars of new capital, although their net earnings during the same period have been substantially below the level fixed as fair by Congress. It would be a mistake, however, to assume that because this has happened in the last eight years it will continue to happen during the next eight years, even under the present rule of rate-making, and I am confident that it will not happen if tendencies now very much in evidence are not checked.

It must be kept in mind that the people who advanced the $5,000,000,000 during the last eight years

looked not only to the rate of interest and dividends which they would receive, but also to the assurances contained in the act and which they hoped would be fulfilled concerning what the railroads would be permitted to earn. If those assurances have not borne fruit, the difficulty lies not in the act, but in its administration.

Waterway and Motor Competition

There is another important element in the situation which has developed since the World War and which should not be overlooked in a discussion of this matter. Before the war there was a rather steady growth of business in the United States from year to year, which was reflected in the constantly increasing tonnage carried by the railroads. Under such conditions it was generally expected that the roads would somehow be able to maintain their net revenue, even if the rate per ton mile did show a gradual decrease year by year, while wages continued to increase. Since the war conditions have changed. While the general business of the country may be increasing, and probably is, the same is no longer true, to the same extent as formerly, of the railroads. The development of hydro-electric power, the extended use of crude oil for fuel, and shifts in industrial locations, have made serious inroads into the use of coal, thereby substantially reducing its movement by rail. The increased and steadily increasing volume of tonnage moving on the inland waterways has largely been diverted from the railroads, and it certainly must be expected that the 3,000,000 motor trucks and 20,000,000 other motor vehicles in operation on the highways in the United States are handling some business that formerly moved on the railroads. As a matter of fact, we know that they are handling a very considerable volume of such business, both freight and passenger.

As a result of these influences, among others, the freight traffic handled by the railroads has remained substantially stationary during the last eight years. Whether this condition is to be permanent or only temporary no one can say. It is apparent, however, that the railroads can not now look with confidence to an increase of traffic each year, sufficient to offset the effect of reduced rates and increased operating costs, as has been the case to a certain degree in the past. There is, in such circumstances, only one remaining avenue of relief, usually involving large capital expenditures, and that is more effective and economical operation, and it will be recognized that there are rather definite limits in that direction.

The total ton mileage per annum handled for hire in the United States by all available agencies, including vessels on inland waterways other than the Great Lakes is approximately 476 billion, and of this total amount about 90 per cent is carried by the railroads. It is evident, therefore, that the railroads are, and probably for a long time will continue to be the most important transportation agency in this country. While we would hardly be justified, for the reasons I have mentioned, among others, in expecting the traffic carried by the railroads to increase as rapidly in the future as it has in the past, it would certainly be most unwise to assume that the business of the railroads had now reached the maximum and that no additional facilities will be necessary. To follow such a course would be simply to invite a recurrence of conditions preceding the war.

Passenger Business Declines, Service Increased

While the number of passengers carried by the Baltimore & Ohio in 1927 was less than half the number carried in 1920, the passenger train miles run were actually greater. The railroads have been slow to propose, and the Commissions have been reluctant to approve the discontinuance of local passenger trains even when it could be shown that the number of persons using such trains was almost negligible. This is a problem which faces all the roads, and I have no doubt it will eventually be worked out with the commissions, state and federal, but so far progress in that direction has been very slow.

Coincident with these economic changes there has been a constant wearing away of the rate structure through innumerable applications for "adjustments." The unwisdom and if I may say so, the unfairness of so administering this lawfully established rule of rate-making as to require the carriers to accept rates and fares insufficient to yield a fair return upon the value of their properties devoted to transportation purposes, should be apparent to anyone who gives the matter serious consideration.

Some one said during the recent Presidential campaign that we had no basis for a discussion of prohibition in this country because we had not yet had prohibition. This prompts me to say that we have no real basis as yet upon which to discuss the actual value of the railroad as an important economic unit in our industrial system, because never so far as I know have the railroads been, for any considerable period, in such circumstances that they could afford or had the means to realize their potential possibilities, not only as useful and necessary transportation agencies, but also as a very potent influence upon the stability and integrity of business and of employment.

Would Buy More If Conditions Justify

To indicate more clearly what I have in mind, I may perhaps be permitted to say in this connection that we of the Baltimore and Ohio consider the physical condition of that property today to be as good, if not better, than ever before in its entire history. Even so, I wish that instead of placing an order for 90,000 or 100,000 tons of steel rails for renewal purposes during the next twelve months we felt justified in ordering 150,000 tons. The application of that larger amount of new rail of heavy section would certainly increase the stability of our track and would contribute to the smoother riding of our trains. Both of these things would be in the public interest, and industry and employment would also be stimulated by the placing of the larger order.

I wish that the circumstances of the railroads generally were such as to justfify them in the more rapid replacement of wooden passenger train cars with coaches of modern steel construction. While it is true that the Baltimore & Ohio, in common with most other railroads, has already enough steel coaches to supply the needs of all its heavy and fast trains, the public would no doubt be better and more satisfactorily served if the railroads had modern equipment on all trains. There again we would be doing something to stimulate and stabilize business, and furnish employment for additional men, and the public would receive the benefits directly flowing from such an expenditure.

I wish we felt in position on the Baltimore & Ohio to add to our freight equipment 5,000 or 10,000 additional cars of modern construction at this time. It is true we have had a surplus of freight cars on the Baltimore & Ohio for some five or six years, and we see no urgent need for buying additional equipment at this time. Nevertheless, if we did buy we would be doing something that might be of great importance to the

public later on in case there should suddenly come about a sharp and unexpected increase in the volume of business offered the railroads. It would also enable us to furnish cars more suitable for the requirements of some of our shippers, which would be to their advantage as well as ours, and again would mean increased business for the car plants and increased work for their employees. Much the same argument would apply to the purchase of additional motive power.

Is This a Minimum Standard Country?

Although net income of the railroads of the country for the last eight years has been below the standard contemplated in the Transportation Act, the carriers have been able so far, I think, to maintain the implied standard of service suggested by the word "adequate." Even so, that standard is really a minimum, and by no means the reasonable maximum. I dislike to think of the United States as a *minimum standard* country.

To provide additional facilities and to carry out such a program as I have been discussing, the financial condition and the credit of the railroads should be such as to enable them to raise on satisfactory terms at least $750,000,000 of new capital each year.

The difficulty at the present time is this: The railroads, or the large majority of them, I venture to say, find a very real problem much of the time in trying to adjust their expenditures in harmony with their restricted income while maintaining their properties substantially as they are. In these circumstances railroad managers are naturally reluctant to increase their capital expenditures and fixed charges to the extent that their judgement might otherwise dictate if their properties were on a somewhat more liberal basis of earnings. I know this has long been the problem confronting the Baltimore & Ohio management, and I have no reason for believing that conditions with us are much different from what they are with other companies. Any policy that tends to prevent the railroads from realizing and the public from receiving the full possibilities to which I have alluded is not, in my opinion, such a policy as will best promote the public interest.

In conclusion, permit me to say that we have, in my opinion, in the Transportation Act of 1920, a workable scheme for regulating the railroads under private ownership, including, in Section 15-a of the Act, a sound rule for rate-making for the guidance of the Interstate Commerce Commission.

When it is recognized, as it should be, that a very important element of our present basis of railroad credit is to be found in the assurances and implied promises contained in Section 15-a of the Act, it will be realized, I am sure, what effect the repeal of that section, as is being urged in certain quarters, would have upon the the credit of the carriers generally, and thus upon the country at large, even though the promise itself has not yet been realized.

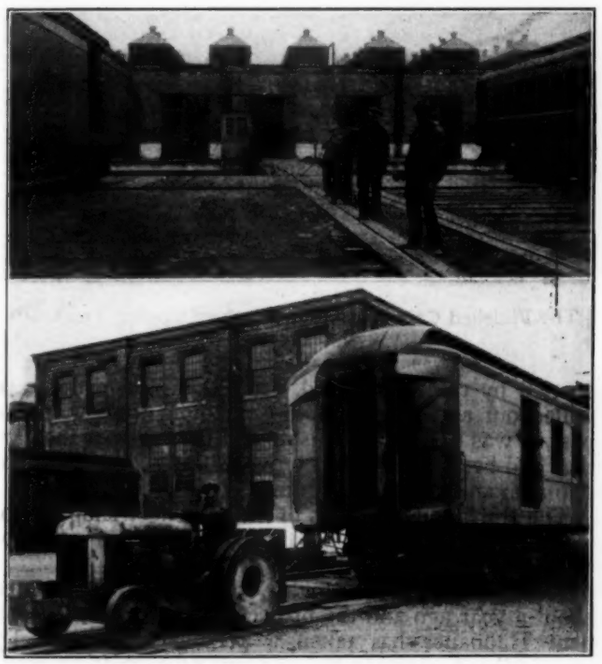
The Law Should Not Be Changed

I am not asking that the law be changed. On the contrary, I am asking that it be *not* changed at this time. I am also asking that the regulating agencies co-operate in a constructive and sympathetic manner with the railroads in order that the roads may, in the public interest, be able, in the words of the law, to earn, as nearly as may be, a fair return upon their properties used for transportation purposes. If such a course as I have suggested were followed, I believe that what the users of the railroads would gain because of more adequate, more satisfactory and more dependable service, what the manufacturers would gain through enlarged and more timely purchases by the railroads, and what the workers would gain in the way of increased and stabilized employment would more than justify all that I have said in support of such a program.

B.&M. Reduces Shifting Costs at Passenger Car Shops

THE Boston & Maine passenger car repair department located at Billerica, Mass., consists of two 10-track buildings separated by a transfer table. After the cars are repaired in one shop, they are moved over to the paint shop for completion. Each track will normally hold two cars, but three cars can be spotted when necessary.

Formerly, a shop shifter was assigned to bring the cars into the yard, spot them on the repair tracks and remove them when completed. This work required the



Top—The Old Method of Using a Cable to Move Cars; Bottom—A Tractor Does the Same Work Quicker and Cheaper

greater part of an eight-hour day. In addition to the work of the switching crew, a 500-ft. cable was used to pull cars into the repair shop and from the repair shop onto the transfer table into the paint shop. It required five men to pull this cable to the cars and attach it to the couplers, after which the cars were moved by a winch on the transfer table.

A study was made of the shifting movements, after which it was decided that all but 30 min. of the time of the switching crew could be eliminated and that the use of the steel cable for moving cars could be discontinued by the use of a gasoline tractor. It was necessary to rearrange the shop repair schedule in order that full advantage could be taken of the use of the tractor. The cars are scheduled so that all the cars on each track can be moved on the same day.

The tractor used has a low gear ratio to increase its

pulling capacity and is provided with a special frame to withstand hard service. Heavy planks have been placed between the rails of all outdoor tracks in order to provide a smooth runway for the tractor.

Under the new system, the shopped cars are placed on the shop track by a switching crew. The tractor then places them via the transfer table on the empty repair tracks that were cleared the previous day. As the cars are completed in the repair shop, they are moved over to the paint shop by the tractor. When completed in the paint shop, the tractor places them on the shipping track ready for the switching crew to take them away.

Sometimes it is necessary to place a third car on a repair track that already has two cars on it. The tractor can readily do this without moving the two cars already spotted.

This tractor has also eliminated the services of a switching crew at the wheel shop. The empty cars are

The Finished Cars Are Moved to the Shipping Track by the Tractor

spotted by the tractor and, after they are loaded, are pulled out and placed on the outbound track. In the past, it was necessary to use pinch bars to spot the cars that had been brought in by the shifter. This required two men and considerable time.

The shifting movements in the passenger shop do not require all of the time of the tractor. It is used for other work about the shop.

The utilization of a tractor for shifting was started about a year ago and the project is one in which President Hannauer has taken a personal interest. By practically eliminating the services of a shifting crew, a saving of $23,000 a year has been effected. In addition, by eliminating the use of the cable, there has been a labor saving of approximately $3,000 a year, making a total saving of $26,000 a year. A further advantage is that when emergency moves have to be made, no time is lost in waiting for the switching crew.

An Efficient Short Line

A FEW years ago, the Roby & Northern, a steam line five miles in length operating in Fisher County, Texas, was on the verge of abandonment. In fact, the citizens of Roby, accredited to it the distinction of being the worst five miles of railroad in the United States. All its equipment was much the worse for wear, having been bought third or fourth-hand to begin with and having suffered the inevitable deterioration. The track was in a like state of decrepitude.

Mule Power

Two ancient locomotives and a few flat cars made occasional trips, but the chief reliance in the way of motive power was a pair of mules, who served in the frequent emergencies when both of the locomotives refused to function.

But, poor as the railway was, it was the only line into Roby, connecting that place with North Roby, on the Missouri-Kansas-Texas. Roby business men made overtures to the West Texas Utilities Company, which serves the town with light and power and that company undertook the rehabilitation of the line.

New rails and creosoted ties were laid, the old sheet metal shack used as a station was torn down and a modern edifice of brick, tile and concrete was built. The line was electrified and a new 90,000 lb. electric car was purchased.

The line now claims three distinctions, that it is on time, all the time, that it is the shortest short line in the country and that it has not had an accident in the three years' operation since it was electrified.

Report Return

Roby is a prosperous little West Texas city, the county seat of a community of farms and ranches. The road handles passengers, freight, express and mail from and to the city and its owners report that it is earning a fair return on the investment.

Its principal item of freight consists of cotton, of which from thirty to forty thousand bales are handled yearly. Grain and livestock make up most of the remainder of its traffic.

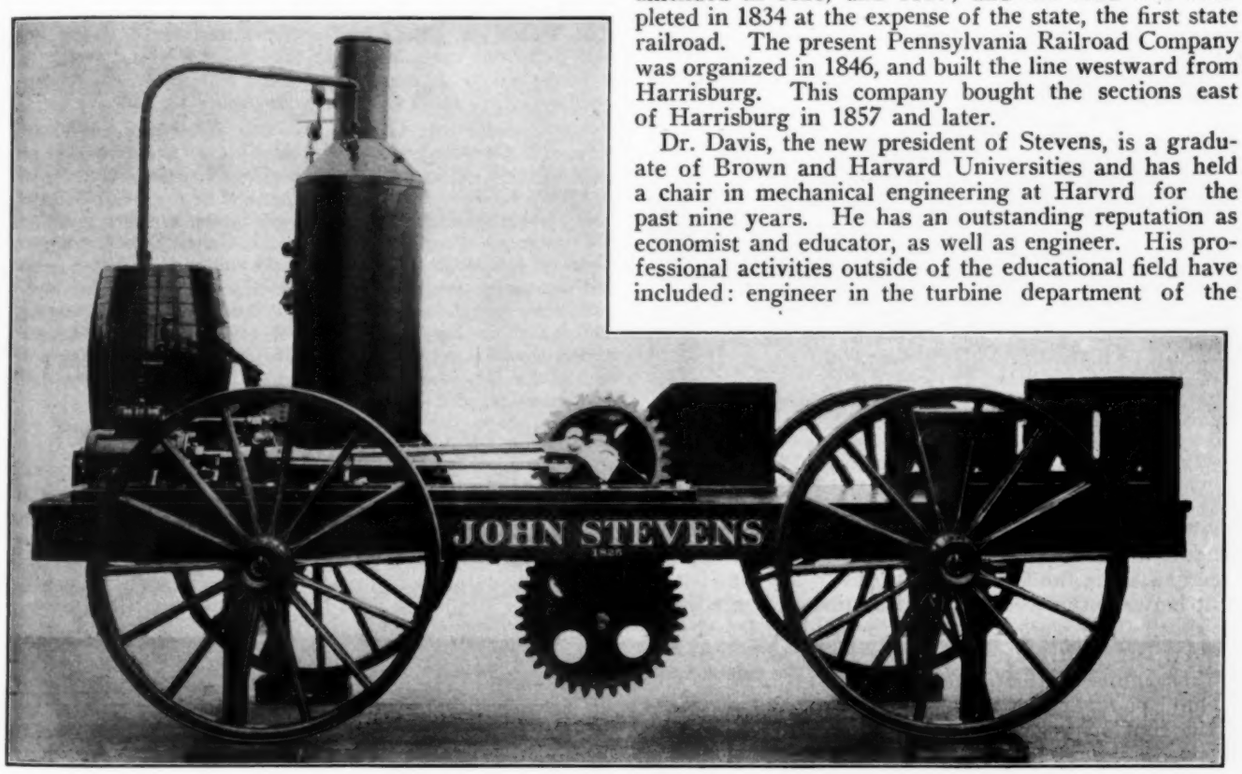
The Roby & Northern Car at the Station at Roby, Texas

Stevens Institute Inaugurates New President

DR. HARVEY NATHANIEL DAVIS was inaugurated as the third president of Stevens Institute of Technology at Hoboken, N. J., on Friday, November 23. A participant in the inaugural ceremonies was the Pennsylvania Railroad which furnished a full-size working model of the first locomotive to be operated on rail in America; that which was built by Colonel John Stevens, the founder of Stevens Institute, in 1825-26.

Stevens' original locomotive, 16 ft. long and 4 ft. 2 in. wide was operated on a track and a rack laid on a circle 200 ft. in diameter, on the Stevens estate at Castle Point, Hoboken, now the site of Stevens Institute. The engine weighed, in working order 5,125 lb. and was carried on ordinary wagon wheels. The wheels had no flanges and the engine was kept in alinement with the timber rails by vertical posts extending down from the four corners of the frame. Eash post was equipped with a caster which bore horizontally against the inside of the rail. The upright boiler was of the squirrel-cage type, consisting of 20 tubes, with headers at the top and bottom, and carried a working pressure of 100 lb. The cylinder was 5 in. in diameter by 12 in. stroke, and drove the locomotive through gears, one of which meshed with the rack mounted between the rails. The locomotive produced a tractive force of 530 lb. and is said to have been operated at speeds up to 12 miles an hour.

The Pennsylvania, in honor of John Stevens' pioneer work in demonstrating the practicability of steam motive power, built the working model at Altoona and it was operated on a replica of the original track which was located near the site of the original track on the campus of the Institute.



Replica of John Stevens' Locomotive Exhibited in Operation at Hoboken, N. J., on November 23

There was exhibited also, at Hoboken, the original boiler and safety valve which have for many years past been on exhibition at the Smithsonian Institution at Washington. At the Smithsonian also is a small model of the engine in which the boiler is set up outside the casing. The firebox appears to have been within a circle formed by the tubes of the boiler. These tubes were 1-3/16 in. diameter outside and 40½ in. long between headers.

Colonel Stevens is sometimes spoken of as the Father of the Pennsylvania Railroad, one of his early enterprises being the securing from the state legislature in 1823, of a charter for the "Pennsylvania Railroad Company." This was for a railroad from Philadelphia westward to Columbia, about 80 miles, and stipulated that the road was to be *operated by steam power.* Owing to scarcity of capital and to general skepticism, Stevens' plans were not carried out and the railroad between these points was finally built under a charter amended in 1826, and 1828; and the road was completed in 1834 at the expense of the state, the first state railroad. The present Pennsylvania Railroad Company was organized in 1846, and built the line westward from Harrisburg. This company bought the sections east of Harrisburg in 1857 and later.

Dr. Davis, the new president of Stevens, is a graduate of Brown and Harvard Universities and has held a chair in mechanical engineering at Harvrd for the past nine years. He has an outstanding reputation as economist and educator, as well as engineer. His professional activities outside of the educational field have included: engineer in the turbine department of the General Electric Company; aeronautical engineer in the United States Air Service, and consulting engineer, United States Bureau of Mines. He has also served the Franklin Railway Supply Company and the Air Reduction Company in consulting capacities.

A NEW TYPE OF COKE CAR is now being used in heavy duty service on the lines of the German Railway Company in the Ruhr district, according to recent reports received by the United States Department of Commerce. These cars are of the automatic side hopper unloading type, specially designed for the coke traffic, and were developed by increasing the length of the standard coal car constructed by the Krupp works from 32 to 39 feet.

The new cars are constructed of silicium steel and have a carrying capacity of approximately 60 tons. The wheels are equipped with roller bearings, while particular attention was given to the springs which are constructed of high grade steel, in order to prevent unnecessary wear to tracks and car.

Steel Butterfly Canopy With Truscon I-Plate Roof

BUTTERFLY canopies of copper-bearing steel, fabricated by the Truscon Steel Company, Youngstown, Ohio, and roofed with Truscon I-plates, were recently installed by the Chicago & North Western at its Mayfair suburban station in Chicago during the revision of its facilities entailed by track elevation.

The adaptation of Truscon I-plates for this purpose provides a roof which is said to be low in first cost and to require little work for its installation. These plates are made from 18 or 20-gage steel sheets with I-sections formed longitudinally in the sheets at intervals of 6 in. The I-sections have a depth of 1 in., with

Truscon Steel Canopy with Truscon I-Plate Roof

a bottom flange 5/8-in. wide. The plates are made in standard widths of 24 in., one side having a complete I-section, while the other side is bent to a ½-in. flange to fit between the webs of the I-section of the adjoining sheet. The plates are made in standard lengths of 8 and 10 ft., but may be furnished in special lengths to a maximum of 10 ft.

The I-plates are applied directly over the members of the roof structures, to which they are fastened by means of sleeve-splice clips which telescope over the flanges of the roof members, holding the plates securely in place. The plates were coated, after they were installed, with Krodeproof waterproofing, made by the Lewis Asphalt Engineering Company. This was applied like paint, at a cost of about three cents per square foot.

It is said the cost of the canopy in place was about one-third less than that of a canopy of the same size built of wood. Other advantages claimed for this type of construction are long life, freedom from damage by vandalism and the practical elimination of maintenance costs. In the design of the structure, a 12-in. channel is carried along each side of the canopy to give it a neat appearance. If desired, the ends of the canopy can be supplied with steel plates, on which the name of the station can be shown.

THE CHICAGO GREAT WESTERN, during October, 1928, established a system record of 51 miles per freight car per day.

Looking Backward

Fifty Years Ago

The first convention of state railroad commissioners which was held at Columbus, Ohio, on November 12, was devoted mainly to action looking toward securing uniformity in accounts and returns required of railroads. A committee was appointed to develop a form of returns and a system of railroad bookkeeping. The fierce granger spirit which characterized state railway boards in the West a few years ago has practically disappeared.—*Railway Age,* November 21, 1878.

The St. Paul & Pacific [now the Great Northern] and the Northern Pacific have come to an agreement in respect to their conflicting claims to a land-grant near Glyndon, Minn. The St. Paul & Pacific surrenders its claim to this overlapping grant and gives the Northern Pacific full use of its tracks into St. Cloud, Minn., St. Paul and Minneapolis. Neither company is to invade the other's territory, the Red River Valley and Manitoba being conceded to the St. Paul & Pacific. Freight is to be carried by the most direct route and traffic will be prorated.—*Chicago Railway Review,* November 23, 1878.

A suit against the Chicago & North Western for infringement of a patent covering the connecting of two trucks of an eight-wheeled car by means of a horizontal centre lever so that all brakes can be operated from either end of the car, which has been stubbornly defended for 17 years by the Western Railroad Association, was finally decided in the United States Supreme Court on November 22 in favor of the railroad. A lower court had previously entered a decree of $47,000, involving infringement over a period of five years on 70 miles of line. It is estimated that the decree of the lower court, if it had been sustained, would have represented a liability for all such brakes in use in the United States of about $30,000,000.—*Railway Age,* November 21, 1878.

Twenty-Five Years Ago

Since the enactment of the Texas law requiring interlocked signals at crossings, the railroad commissioners of that state have approved plans for signals at 67 points. Twenty-nine of these plants, 17 manual and 12 electric, are now in operation, with an aggregate of 600 levers.—*Railroad Gazette,* November 27, 1903.

After 16 years as an outlaw organization on the Chicago, Burlington & Quincy, following the defeat of the Brotherhood of Locomotive Engineers in the strike of 1886, the president of the union has concluded an agreement with the railroad for recognition which will allow Burlington enginemen to become members.—*Railway and Engineering Review,* November 21, 1903.

Ten Years Ago

Director General McAdoo, on November 16, announced an award of increased wages to telegraph and telephone operators and towermen which affects about 70,000 employees and involves increases approximating $30,000,000. The increase, which was effective October 1, approximates 37 per cent of the present hourly rate of pay.—*Railway Age,* November 22, 1918.

Neither the end of the War nor the election of a Republican Congress supposedly hostile to the idea of permanent government operation or ownership of the railroads, is to interfere with Director General McAdoo's plans for continuing the process of railroad unification. Leaders in the Senate have approved a plan embodied in a resolution drafted by Senator Cummins of Iowa which provides for the creation of six joint congressional committees to investigate reconstruction measures. One of the six would be a committee on interstate transportation, to consider the disposition of the railroads in relation to possible future government ownership or operation.—*Railway Age,* November 22, 1918.

Communications and Books

Operative Control of Locomotive Feedwater

NEW YORK.

TO THE EDITOR:

The economy, if not the absolute necessity of treating the water used by locomotives, is conceded today by railroad operating officers. Efforts in this direction have been based primarily on the elimination from the water of any substances which may form a hard deposit on the heating surfaces. Such deposits interfere with the transmission of heat, increase maintenance costs, and are responsible at times for engine failures due to burns and leaky flues.

The larger roads have appointed water engineers, skilled in water chemitsry, to handle their water problems. By introducing water softeners at strategic points, some of these men have achieved remarkable maintenance savings and at the same time have benefitted the operation of trains. The more capable water engineers endeavor to synchronize the water treatment with the main problem and business of the railroad—moving trains with the least expense and delay.

Others, in their zeal to eliminate any semblance of a deposit in their boilers, propose to place water softeners at every station on the railroad, overlooking the fact that clean boilers alone may not be the solution to the most efficient train operation. Experience has shown that, where complete divisions have received softening treatment to the point where the boilers are substantially clean, and especially so in the front, new troubles develop in the form of pitting and foaming. The foaming is caused by the increased amount of sodium salts in the water following the softening process and can be controlled only by a rigid blowdown program and frequent changes of the boiler water. The pitting is caused by the exposure of the metal directly to the action of any oxygen in the feedwater and the increased electrolytic properties of the water arising from the mentioned increase in sodium salts, which accelerates any pitting action caused by oxygen or galvanic activity. These problems of foaming and pitting are actual enough to have held up the water softening program of more than one large railroad until some decision is reached as to the proper method of further procedure.

In the meantime rapid progress has been made in the development of what is known as the wayside-tank method. By this is meant not the use of caustic or soda ash, which depend for their efficiency upon neutralization of sulphate hardness with corresponding increase of sodium salts, but the use of carefully-compounded formulas based on the water treated, to cause the precipitation of the hardness as a sludge by colloidal action without its conversion to sodium salts to any large degree. This treatment in its most successful form is applied as a dry chemical added in a bypass feeder set on the water line to the wayside tank. This method of treatment has proved its value over complete divisions. It precipitates the scale forming matter so that it is readily removed by blowing down at terminals. Insufficient sodium salts are developed to give rise to foaming and a thin soft deposit is left on the boiler parts to protect them from pitting.

But as in the case of complete softening, this chemical treatment delivers its benefits only at the cost of a new form of trouble. This is the deposit of a considerable amount of mud and sludge among the tubes and at the flue sheets, necessitating the removal of a number of tubes between shoppings to clean out the mud.

Best results from an operating standpoint may be obtained where the methods of complete softening and wayside tank chemical treatment are combined on the same division. Complete softening of some of the water allows the removal of sufficient of the scale forming matter to prevent mud trouble in the tube nest and at the flue sheets. By not softening all the water the sodium salt content in the boilers is kept below the critical point at which foaming develops. Wayside tank treatment at the other water stations, allowing some hardening salts to enter the boilers and be sludged, prevents the formation of hard deposits by the remaining incrusting matter and leaves only enough sludge in the boilers to act as a protection against pitting. The softening plants should be spaced over the division with wayside treatment at intermediate points.

Such a combined treatment should be established only after a careful survey covering not only the amount and character of the water taken at each station, but also the location of the stations with respect to train movements. The combined treatment should be aimed at the elimination of not only hard scale, but pitting and foaming as well. With the realization that each of the forms of treatment has its peculiar benefits, the management which combines them to take the best of each with the drawbacks of neither, will be found best meeting its problem of water treatment.

C. B. FLINT,
Vice-president, Paige & Jones Chemical Company.

Books and Articles of Special Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian, Bureau of Railway Economics, Washington, D. C.)

Books and Pamphlets

Roller Bearings for Railway Equipment, by Walter C. Sanders. Paper before Associated Engineers Club, Spokane, Washington. 5 p. Pub. by Author, Canton, Ohio. *Apply.*

Bulletin No. 17, The Railway and Locomotive Historical Society. Includes "Dates of Some of the Principal Events in the History of 100 Years of the Railroad in New England" by Warren Jacobs, "Train Speeds and Safety in 1826 As Expounded in the Early Writings of Claudius Crozet" by Elizabeth O. Cullen, "The Beginning of S. P." by D. L. Joslyn, Part II of "Historical Notes on Locomotive Design (1840-1890) by E. G. Young, and "South Carolina Canal and Rail Road" by G. E. Mauldin. Illustrated. 87 p. Pub. by Railway and Locomotive Historical Society, Boston, Mass. $1.00.

The Royal Scot and Her Forty-Nine Sister Engines, by S. P. B. Mais. "Taking a leaf out of the book of the Army Council, the LMS have decided to bestow upon their fifty latest engines honorable and glorious names, taken partly from famous regiments and partly from famous engines of long ago." p. 5. The history of the type, and of the regiments for whom the locomotives are named is set forth. Illustrated. 64 p. Pub. by London, Midland & Scottish Railway, London, England. 1 shilling. Available in New York at American office of LMS.

Periodical Articles

Speeding Up a Railroad Yard, by James R. Randolph. A popular, illustrated article on improved equipment in the Mechanicsville Yard of the Boston & Maine. Scientific American, November 1928, p. 428-429.

Consequences Politiques de la Création des Chemins de Fer, by Georges Renaud. Prof. Renaud considers two important questions: How have railways modified relations between different classes of people and how have they modified relations between parts of a country, and among the various countries. Revue Economique Internationale, October 1928, p. 94-116.

Can Airplanes Compete in Carrying Freight? by Harris M. Hanshue. "In the matter of economy, the size of the load and its weight must always be a matter of prime consideration for the airplane, and therein exists the limitation of air travel. It cannot economically transport a package of great bulk or of extreme weight. Rather it is a light cargo carrier." p. 12. Illustrated. Distribution Economy, November 1928, p. 12-14, 59.

Odds and Ends of Railroading

An article in the Industrial Daily News, dealing with steam rail cars in use on the London & North Eastern, included the statement that "accommodation is provided for 56 passengers with reversible seats."—*Railway Gazette.*

Another Colonel!

Governor Sampson of Kentucky certainly keeps the editor of this department busy, by appointing railway men as colonels on his staff. This time it's A. A. Dale, agent of the Louisville & Nashville, at Myers, Ky., where he has been, incidentally, for the past 23 years.

An Old-Timer

Thomas Jordan, pensioned baggage-master of the Cleveland, Cincinnati, Chicago & St. Louis, celebrated his 100th birthday anniversary on August 15 at Hartwell, Ohio. Mr. Jordan served the Big Four for 53 years. The span of his life may be better realized when it is considered that, upon the occasion of his wedding, he received six negro slaves as a present from his father-in-law.

Another Railroad Lawyer

Charles J. Greene, colored, clerk in the office of Vice-President Harris of the New York Central, is the most recent addition to the bar from the ranks of railway employees. Greene attended Fordham university at night for five years and graduated in June with an excellent record. During the month of his graduation he passed the state bar examination on his first attempt.

A Versatile Agent

Matthew Hayes of Andover, Ohio, is agent for the New York Central at that point. But that isn't half of it. In addition, Matthew is mayor of the town and also its poet-laureate. After a recent airplane flight over Andover, Agent-Mayor Hayes wrote a verse entitled, "A Bird's-Eye View of Andover," which has been favorably commented upon in his native city.

Brakeman-Lawyer

Joseph C. Nangle, in his eight years' service as a yard brakeman for the Pennsylvania at Columbus, Ohio, has done remarkable things. While working, he completed courses at North high school, and in the arts and law colleges of Ohio State University. He was fourth in the state bar examination and is now associated with a prominent Columbus law firm.

Tallest Century Plant?

Among the claimants for honors in the railway field are the employees of the Missouri-Kansas-Texas station in San Antonio, Tex. They maintain that the century plants growing in the plaza in front of the station are the largest at any railway station. Several of these plants have reached a height of 35 ft., and they are, at least, the largest to be found in San Antonio.

Short Station Names

In our compilation of two-letter station names on the railways of the world, we seem to have overlooked Denmark, which contributes five to the list. They are "He" and "Ry" on the Danish State Railways, "Eg" on the Varde Grinsted Railway, "No" on the Ringkobing Ornhoj Railway, all in the province of Jutland, and "Ro" on the Ronne Allinge Railway on the Island of Bornholm.

Pleasures of Travel in Italy

The passenger who, as reported in this department, sued the railroad for allowing him to fall asleep on a train, had better not travel in Italy. There we are informed by a tourist just returned, the Fascist government has decreed it a misdemeanor for a passenger to fall asleep while traveling in other than a sleeping car. The unwary tourist who allows himself to nod rather than enjoy the outlook from the window is fined 50 lira.

"What of It" Department

At the present time there are 7,000 miles of railroad track in China, an area larger than the North American continent, and with four times as many inhabitants as the United States.

Camels Again Come Into Their Own

While it has been called "A far cry from the camels of Babylon to the Twentieth Century Limited," these ancient transportation agents have nevertheless again come into their own, according to a recent Associated Press dispatch from China. When the northern troops withdrew into Manchuria, they took with them thousands of freight and passenger cars and hundreds of locomotives. As a result, camel dealers were swamped with camel orders which they were unable to fill while camel drivers were reported to be rolling in wealth, with earnings often touching 75 cents a day, because of the demand for their services to perform the transportation work formerly carried on by the railways which had been stripped of their rolling stock.

Political Engineers

A recent Associated Press account of the activities of the British royal family states that King George's favorite job is driving a locomotive. It goes on to state that His Majesty is a keen engineer and can carry on an intelligent conversation with the engineman and fireman of a locomotive. This political situation is somewhat in contrast to that found in this country. If our memory is correct, President Harding was the last chief executive of the United States to have his picture taken sitting in the cab of a locomotive. The scarcity of pictures in the daily press showing presidential candidates sitting in the cab of a locomotive with one hand on the throttle, was undoubtedly a feature of the recent campaign. It would seem that one of the important qualifications for real statesmanship has been overlooked by the leaders of both parties. (This also includes Will Rogers, recently candidate for president of the Anti-Bunk Party.)

Car Names

Following the naming of express cars, an editorial writer in a St. Paul paper waxes lyrical over the possibilities of naming box cars. His outburst follows:

"What an opportunity for originality and research. Even if the names do not indicate it, the title writers for the railroads have been limited in their scope with only the cafe and parlor cars to baptize. Now, with hundreds of thousands of box cars as canvases, these artists can really show their stuff. Cattle cars can be called 'Pontiac Segis Ormsby,' 'Duke of Denmark' and 'Bull Montana.' Some of the general merchandise carriers really should be named for 'Jim Tully,' 'A-No. 1' and other famous riders of the rods. By all means the title writers must copyright their creations promptly or unscrupulous lowbrows on other roads will plagiarize. Think what a temptation it would be to a weary wit, who has scratched his head all day in vain search for a proper grain car name, to glance out the window and see a competitor's car, 'Blue Stem,' roll by! It may be necessary in some instances to follow a name with a parenthetical explanation. For instance 'Durum' should have after it in small letters (wheat, not bull). The educational possibilities of this innovation are unlimited. A farmer lad can sit on a knoll watching a mile long freight go by and learn French, Indian, Spanish Swedish, and no end of new American names for the crops he is producing."

NEWS *of the* WEEK

Southern Pacific Trains on Mississippi Car Ferry.—Galloway Photo.

THE WESTERN RAILWAY CLUB will hold its next meeting on the evening of December 7 at the Hotel Sherman, Chicago.

THE NEW ENGLAND RAILROAD CLUB will hold its next meeting on December 11, at the Copley-Plaza Hotel, Boston. D. C. Curtis, chief purchasing officer of the Chicago, Milwaukee, St. Paul & Pacific, will read a paper on budgeting railway purchases.

THE INTERSTATE COMMERCE COMMISSION has further extended the time for filing exceptions to the proposed report by Commissioner McManamy, relating to the use of private passenger train cars, from 90 to 120 days from date of service of the report.

MORE THAN 100 GENERAL CHAIRMEN of the Brotherhood of Railroad Trainmen and the Order of Railway Conductors met in Chicago this week to consider the proposals of the Emergency Board, in its report of October 24 to President Coolidge, for a settlement of the wage and rule controversy between the Western Railroads and their conductors and trainmen. The entire committee of general chairmen met with the Conference Committee of general managers on November 21.

Corrections

In the State of Connecticut motor vehicle accidents at railroad grade crossings, according to the last yearly record, averaged 5.4 per ten thousand motors registered in the state. This statement is made in correction of one printed in the *Railway Age* of September 22, page 561, wherein the average was given as 5.4 per one thousand. This figure was compared with the average for 1922 which was 7.8 per 10,000 registrations.

The report of the decision of Judge Robert J. Smith of the United States District Court at Denver, Colo., in the Moffat Tunnel tax case as reported in the *Railway Age* of October 30, page 782, was in error in that Judge Smith's opinion did not state that the Moffat Tunnel "Commission erred in leasing the tunnel to but one railroad, the Denver & Salt Lake."

Election of State Railroad Commissioners

The office of railroad commissioner appeared on the ballot for the election of November 6 in a number of states in the West and in most cases a sitting member of the commission was re-elected. In New Mexico, Jose S. Baca of Albuquerque was elected for a term of six years, beginning January 1, to succeed B. Montoya. Porter Dunlap was re-elected for a term of six years as a member of the Railroad and Public Utilities Commission of Tennessee. Other commissioners who were returned as members of their respective state commission are: Dawes E. Brisbine, chairman, South Dakota; Fay Harding, president, North Dakota; B. M. Richardson and Fred P. Woodruff, Iowa; Christian J. Laurisch, Minnesota; Lon A. Smith, Texas.

Daniel Boyle, who is completing his eighteenth year as a member of the Montana Commission, was re-elected as chairman.

St. Louis & O'Fallon Valuation Case

Donald R. Richberg, as counsel for the National Conference on Valuation of American Railroads, has asked the Supreme Court of the United States for leave to file a brief and present oral argument in connection with the St. Louis & O'Fallon valuation case, as amicus curiae, taking the position that the law provides for a valuation of the railroads for rate-making purposes and that a valuation of that kind represents an exercise of the legislative function rather than one for judicial ascertainment. Counsel for the O'Fallon objected and the court took the motion under advisement. Ordinarily the court does not permit such appearances over objection and the Senate at the last session passed a resolution requesting it to do so in Mr. Richberg's case.

Illinois Central Host to Public

The Illinois Central, in an effort to popularize the territory served by its suburban service in and near Chicago, invited the public to visit the territory on November 18 and offered a 25 cent round trip fare good on trains leaving from any station between 9 a.m. and 10 a.m. and between 1 p.m. and 2 p.m. with stop overs anywhere. Although the day was cloudy and rainy, the effort was successful in that 500 persons took advantage of the opportunity. Had the weather been fair, it is estimated that between 1,500 and 2,000 people would have been guests.

An advertisement invited the people of Chicago to visit the south side and see for themselves the Illinois Central electric line and the development of the suburban communities it serves.

B. & O. Publishes Centenary Editorial Comments

The Baltimore & Ohio has collected and published in book form the editorial comment of newspapers and periodicals on its centenary and exhibition and accompanying pageant, the latter, familiarly known as "The Fair of the Iron Horse," held at Halethorpe, Md., from September 24 to October 16, 1927.

The book contains 457 pages, and hundreds of newspapers in hundreds of different cities, representing all sections of the country, are among those whose comments on the centenary and exhibition are reproduced. The compilation includes editorials published up to the end of 1927 and supplements a previous edition which was published in connection with the B. & O. centenary dinner at Baltimore on February 28, 1927. The book is edited by F. X. Milholland, assistant to the senior vice-president, Baltimore & Ohio.

Western Railway Club Studies Caprotti Valve Gear

At the regular monthly meeting of the Western Railway Club, held November 26, at the Hotel Sherman, Chicago, W. A. Austin, consulting engineer of the Baldwin Locomotive Works, presented a paper on "The Caprotti Poppet Valve Gear". By means of the moving picture, he showed the construction and actual assembly of a number of Caprotti valve gear units. The ease of application of this gear to a locomotive was demonstrated, as well as its flexibility, interchangeability, small driving power requirement,

(*Continued on page 1036*)

Operating Statistics of Large Steam Railways—Selected Items for September, 1928, Comp

Region, road and year	Average miles of road operated	Train-miles	Locomotive-miles: Principal and helper	Locomotive-miles: Light	Car-miles: Loaded (thousands)	Car-miles: Per cent loaded	Ton-miles (thousands): Gross, Excluding locomotives and tenders	Ton-miles (thousands): Net, Revenue and non-revenue	Average number of locomotives on line: Serviceable	Unserviceable	Per cent unserviceable	Stored
New England Region:												
Boston & Albany	1928	407	178,839	191,454	21,065	4,952	70.9	246,372	94,437	102	18	15.2	30
	1927	407	197,081	211,104	23,148	5,035	68.8	258,052	101,028	108	15	12.2	6
Boston & Maine	1928	2,074	384,407	459,309	69,627	12,930	72.7	635,736	254,453	284	44	13.4	49
	1927	2,075	435,890	507,235	45,466	12,557	72.0	626,468	254,051	276	72	20.7	32
N. Y., New H. & Hart.	1928	2,119	510,188	570,090	33,684	15,808	69.6	825,664	342,382	312	59	15.9	48
	1927	2,140	552,911	597,679	40,456	16,124	68.8	839,123	346,889	332	55	14.3	63
Great Lakes Region:												
Delaware & Hudson	1928	875	310,598	419,632	47,717	10,077	67.5	601,309	293,314	244	40	14.0	99
	1927	875	342,954	461,035	50,694	10,126	65.6	633,801	311,675	251	31	11.0	86
Del., Lack & Western	1928	998	519,452	584,591	67,295	18,190	71.4	985,494	421,515	239	58	19.6	22
	1927	999	547,685	622,177	77,318	18,057	69.5	995,964	426,393	241	53	18.0	13
Erie (inc. Chi. & Erie)	1928	2,317	915,183	998,993	92,388	42,475	66.5	2,462,019	1,009,172	424	112	20.8	82
	1927	2,317	990,115	1,089,667	103,777	40,385	65.2	2,413,450	1,009,480	433	145	26.0	3
Lehigh Valley	1928	1,346	558,100	613,354	69,724	18,312	66.7	1,061,098	462,650	319	91	22.1	50
	1927	1,345	570,777	625,258	73,918	18,174	65.1	1,079,319	472,492	361	77	17.5	59
Michigan Central	1928	1,822	566,843	585,333	20,084	21,216	63.3	1,170,707	424,030	197	62	23.8	22
	1927	1,820	567,483	583,353	21,019	18,889	61.6	1,067,879	387,907	230	63	21.5	46
New York Central	1928	6,459	1,971,287	2,215,019	153,848	80,164	63.8	4,760,235	2,006,904	975	376	27.8	210
	1927	6,478	1,895,859	2,120,227	144,962	77,550	63.6	4,631,505	1,994,119	1,107	256	18.8	330
New York, Chi. & St. L.	1928	1,665	588,429	596,424	7,139	21,423	67.4	1,162,053	456,144	227	56	19.8	67
	1927	1,665	586,415	596,997	7,978	20,291	66.9	1,107,542	431,500	238	50	17.3	63
Pere Marquette	1928	2,181	478,096	484,207	6,736	13,060	64.8	770,172	338,987	179	33	15.6	5
	1927	2,180	461,945	468,270	6,383	12,037	64.5	708,979	309,972	182	42	18.6	9
Pitts. & Lake Erie	1928	231	111,325	113,638	1,491	4,344	66.2	348,778	206,216	51	18	26.4	12
	1927	231	113,121	115,151	2,502	4,397	63.6	341,174	198,837	58	18	23.4	16
Wabash	1928	2,497	814,651	847,656	12,375	25,832	66.9	1,433,145	558,381	293	74	20.1	29
	1927	2,497	696,583	734,108	11,661	22,169	66.2	1,224,446	470,941	327	49	13.1	82
Central Eastern Region:												
Baltimore & Ohio	1928	5,534	1,980,947	2,353,463	184,996	62,330	63.6	4,091,657	1,958,453	1,016	231	18.5	97
	1927	5,540	2,061,713	2,428,594	201,629	62,056	62.3	4,161,772	2,016,871	1,071	210	16.4	76
Central of New Jersey	1928	691	265,359	286,589	43,956	7,923	59.0	527,651	249,516	182	27	13.0	26
	1927	691	260,865	284,192	50,301	7,677	58.6	518,036	242,636	188	28	12.8	25
Chicago & Eastern Ill.	1928	945	251,989	252,762	3,371	7,170	67.2	424,143	196,204	113	60	34.6	40
	1927	945	274,751	283,181	4,240	7,270	64.4	454,064	214,266	124	41	24.8	44
Clev., Cin., Chi., & St. L.	1928	2,370	730,192	757,249	18,139	24,611	62.8	1,549,942	710,231	339	104	23.5	42
	1927	2,374	765,302	803,908	23,364	24,706	61.0	1,625,248	757,828	333	98	22.8	38
Elgin, Joliet & Eastern	1928	461	130,957	138,142	5,754	3,860	65.6	280,738	147,472	77	13	14.0	3
	1927	461	130,297	137,080	5,411	3,755	65.4	279,829	148,464	82	13	13.3	4
Long Island	1928	396	49,511	50,293	11,553	653	56.8	42,591	16,678	61	6	9.1	
	1927	396	51,170	56,423	15,135	753	59.2	46,911	18,525	47	9	16.7	1
Pennsylvania System	1928	10,749	3,946,334	4,498,631	419,208	144,824	66.4	9,275,770	4,358,892	2,737	331	10.8	711
	1927	10,844	4,364,643	4,827,550	399,714	142,192	64.8	9,239,303	4,314,084	2,874	372	11.5	661
Reading	1928	1,128	567,153	621,901	52,228	16,561	62.1	1,126,056	562,897	319	75	19.0	64
	1927	1,131	603,887	655,992	64,953	16,498	61.0	1,152,729	580,149	313	74	19.0	50
Pocahontas Region:												
Chesapeake & Ohio	1928	2,728	1,118,778	1,197,880	47,133	40,200	57.3	3,220,145	1,749,081	538	89	14.2	64
	1927	2,708	1,252,334	1,357,660	54,141	42,860	56.4	3,472,085	1,883,472	542	95	15.0	20
Norfolk & Western	1928	2,231	826,152	965,399	34,968	32,471	60.3	2,625,130	1,418,778	516	52	9.1	144
	1927	2,232	881,293	1,078,838	38,198	32,545	59.6	2,678,649	1,447,824	556	51	8.3	126
Southern Region:												
Atlantic Coast Line	1928	5,127	525,728	526,513	6,999	13,862	64.5	737,719	281,989	447	48	9.7	110
	1927	5,096	619,621	626,308	9,403	16,307	63.8	898,305	356,742	434	56	11.4	131
Central of Georgia	1928	1,898	257,658	261,141	3,891	6,615	73.1	338,320	140,459	138	22	13.7	14
	1927	1,898	266,111	269,983	7,478	7,426	74.4	376,863	160,394	140	21	12.9	14
Ill. Cent. (inc. Y. & M. V.)	1928	6,717	1,869,642	1,885,668	29,292	54,389	64.7	3,413,186	1,457,221	745	116	13.4	40
	1927	6,594	2,004,942	2,033,285	44,411	56,750	64.1	3,624,960	1,592,907	789	99	11.2	12
Louisville & Nashville	1928	5,061	1,539,622	1,623,966	55,822	35,242	61.2	2,395,892	1,177,491	598	105	14.9	54
	1927	5,048	1,766,943	1,843,782	59,061	37,411	59.4	2,621,443	1,274,213	642	90	12.2	20
Seaboard Air Line	1928	4,485	464,833	476,840	7,970	11,816	67.3	631,753	251,348	270	64	19.1	30
	1927	4,282	480,060	491,965	5,746	12,516	67.2	684,981	284,915	235	54	18.8	39
Southern	1928	6,718	1,428,300	1,461,148	31,013	36,118	67.5	1,966,231	810,992	848	110	11.5	140
	1927	6,718	1,441,249	1,470,127	30,280	37,301	68.6	1,997,347	825,653	840	112	11.8	83
Northwestern Region:												
Chi. & North Western	1928	8,463	1,537,949	1,637,566	27,809	42,342	64.6	2,492,180	1,014,400	753	127	14.4	62
	1927	8,463	1,573,619	1,671,689	37,571	44,084	66.5	2,406,428	989,809	773	125	13.9	63
Chi., Milw., St. P. & Pac.	1928	11,248	1,854,914	1,988,663	117,084	57,753	64.1	3,453,028	1,489,752	789	130	14.2	108
	1927	11,202	1,895,190	2,024,839	127,643	57,157	65.1	3,443,523	1,541,428	826	128	13.4	106
Chi., St. P., Minn. & Om.	1928	1,724	322,932	347,634	14,516	7,586	70.6	404,652	178,514	158	25	13.8	21
	1927	1,724	347,069	376,186	15,453	7,761	72.2	426,104	193,512	168	23	11.8	18
Great Northern	1928	8,305	1,261,198	1,294,721	78,909	47,942	63.4	3,152,480	1,536,056	516	118	18.5	23
	1927	8,165	1,084,974	1,120,871	60,151	41,379	63.8	2,660,506	1,284,271	571	120	17.4	85
Minn., St. P. & S. St. M.	1928	4,358	642,043	663,448	6,667	18,841	67.9	1,073,161	519,924	227	21	8.3	16
	1927	4,368	692,908	713,161	7,424	18,763	66.5	1,074,979	518,294	312	21	6.4	4
Northern Pacific	1928	6,478	1,106,554	1,175,230	64,543	37,498	67.8	2,203,336	979,462	466	114	19.7	13
	1927	6,476	1,018,973	1,080,355	53,542	33,485	68.5	1,957,335	911,710	484	136	21.9	25
Oreg.-Wash. R. R. & Nav.	1928	2,246	245,490	257,631	18,794	7,509	68.5	446,193	119,623	136	10	6.7	3
	1927	2,154	232,810	245,414	17,932	7,227	71.9	421,019	200,681	136	11	7.6	8
Central Western Region:												
Atch., Top. & S. Fe (incl. P. & S. F.)	1928	10,455	2,000,754	2,245,535	157,360	72,730	65.3	4,295,106	1,461,802	830	123	12.9	112
	1927	10,404	1,994,382	2,204,144	147,533	69,667	64.5	4,154,423	1,408,287	809	140	14.8	120
Chicago & Alton	1928	1,000	324,157	353,720	3,359	8,429	65.0	491,050	188,915	116	36	23.9	10
	1927	995	298,070	323,549	1,999	7,458	63.2	438,162	165,710	144	16	10.2	37
Chi., Burl. & Quincy	1928	9,317	1,618,358	1,689,302	74,906	54,126	63.0	3,183,607	1,434,267	731	166	18.5	47
	1927	9,334	1,517,602	1,588,732	73,061	46,434	64.0	2,625,678	1,146,121	750	160	17.6	67
Chi., Rock I. & Pacific	1928	7,564	1,359,897	1,416,951	15,062	36,047	65.6	2,073,286	873,693	557	116	17.2	58
	1927	7,575	1,318,095	1,372,748	14,843	34,837	63.8	2,043,658	853,404	555	121	17.9	61
Denver & Rio G. Wn.	1928	2,563	360,797	422,642	69,504	10,351	64.3	614,521	243,757	231	38	14.1	15
	1927	2,561	332,136	392,945	63,591	8,659	64.3	513,405	206,518	249	36	12.5	15
Oregon Short Line	1928	2,539	408,754	436,659	42,103	12,980	65.5	784,216	319,662	176	19	9.7	16
	1927	2,539	369,347	397,408	34,972	11,092	68.4	650,477	271,017	181	24	11.7	25
So. Pacific—Pacific Lines	1928	8,736	1,862,188	2,039,378	313,056	59,342	65.7	3,529,342	1,274,899	790	155	16.4	61
	1927	8,770	1,913,129	1,988,595	309,157	55,983	62.7	3,436,418	1,202,554	788	181	18.6	55
Union Pacific	1928	3,749	1,679,453	1,727,446	98,082	61,253	65.7	3,543,824	1,209,065	465	24	4.9	48
	1927	3,712	1,495,724	1,540,518	88,547	55,707	66.8	3,176,568	1,074,091	457	36	7.3	77
Southwestern Region:												
Gulf, Colo. & S. Fe	1928	1,933	239,179	246,672	9,563	8,250	65.0	490,919	207,792	125	20	13.7	36
	1927	1,933	288,203	297,170	7,777	9,192	60.9	580,573	245,859	143	19	12.0	35
Mo.-Kans.-Texas Lines	1928	3,176	467,246	476,286	12,538	16,307	61.3	948,751	369,378	196	51	20.6	61
	1927	3,176	430,819	437,525	7,485	14,623	62.0	847,875	336,414	217	30	12.1	90
Missouri Pacific	1928	7,433	1,458,144	1,511,083	50,440	44,200	65.9	2,597,433	1 084,211	532	93	14.9	14
	1927	7,331	1,366,936	1,410,405	43,857	38,402	63.9	2,295,213	962,349	569	89	13.5	48
St. Louis-San Francisco	1928	5,221	869,296	887,758	9,526	21,594	63.1	1,269,437	525,617	394	74	15.8	35
	1927	4,926	798,961	812,521	8,295	20,515	63.5	1,231,866	526,751	395	59	12.9	74
Texas & New Orleans	1928	4,708	765,751	769,213	2,022	17,844	67.6	999,158	401,183	279	69	19.9	48
	1927	4,553	772,161	774,966	2,078	17,540	63.9	1,042,051	422,224	268	49	15.6	35
Texas & Pacific	1928	2,015	475,426	475,426	4,721	12,844	59.3	844,339	340,762	202	19	8.7	28
	1927	2,015	308,540	308,540	2,929	9,065	62.6	536,214	200,727	169	27	13.8	27

Compiled by the Bureau of Statistics, Interstate Commerce Commission. Subject to revision.

ared with September, 1927, for Roads with Annual Operating Revenues Above $25,000,000.

Region, road and year	Average number of freight cars on line: Home	Foreign	Total	Per cent unserviceable	Gross ton-miles per train-hour, excluding locomotives and tenders	Gross tons per train, excluding locomotives and tenders	Net tons per train	Net tons per loaded car	Net ton-miles per car-day	Car miles per car-day	Net ton-miles per mile of road per day	Pounds of coal per 1,000 gross ton-miles, including locomotives and tenders	Locomotive miles per locomotive-day
New England Region:													
Boston & Albany.....1928	2,209	5,268	7,477	3.4	19,360	1,378	528	19.1	421	31.1	7,734	167	58.8
1927	2,951	5,385	8,336	2.8	17,694	1,309	513	20.1	404	29.3	8,274	176	63.3
Boston & Maine.....1928	10,970	11,509	22,479	5.4	19,543	1,654	662	19.7	377	26.4	4,090	108	53.8
1927	13,334	12,376	25,710	7.4	15,123	1,437	583	20.2	329	22.6	4,081	116	52.9
N. Y., New H. & Hart..1928	16,143	17,407	33,550	9.0	20,831	1,618	671	21.7	340	22.6	5,387	108	54.3
1927	20,631	18,149	38,780	13.5	18,788	1,518	627	21.5	298	20.1	5,403	112	54.9
Great Lakes Region:													
Delaware & Hudson.....1928	8,095	5,786	13,881	4.0	24,125	1,936	944	29.1	704	35.8	11,174	133	54.9
1927	8,053	6,155	14,208	4.5	22,348	1,848	909	30.8	731	36.2	11,871	137	60.4
Del., Lack. & Western...1928	15,418	8,506	23,924	4.9	23,935	1,897	811	23.2	587	35.5	14,077	128	73.1
1927	15,482	8,601	24,083	4.0	22,031	1,818	779	23.6	590	35.9	14,223	131	79.5
Erie (inc. Chi. & Erie)..1928	27,828	22,990	50,818	4.2	33,617	2,690	1,103	23.8	662	41.9	14,520	111	67.9
1927	31,979	22,316	54,295	4.8	28,282	2,438	1,020	25.0	620	38.1	14,521	122	68.9
Lehigh Valley 1928	21,002	11,349	32,351	10.9	26,114	1,901	829	25.3	477	28.3	11,458	144	55.6
1927	21,582	9,974	31,556	10.5	25,710	1,891	828	26.0	499	29.5	11,707	139	53.3
Michigan Central 1928	15,196	18,980	34,176	6.2	31,692	2,065	748	20.0	414	32.7	7,758	104	78.2
1927	15,557	15,520	31,077	5.2	27,441	1,882	684	20.5	416	32.9	7,106	102	68.8
New York Central.....1928	58,732	72,461	131,193	7.0	31,147	2,415	1,018	25.0	510	31.9	10,357	104	58.5
1927	63,944	70,902	134,846	4.2	29,280	2,443	1,052	25.7	493	30.2	10,261	100	55.4
New York, Chi. & St. L..1928	12,915	11,667	24,582	6.0	27 006	1,975	775	21.3	619	43.1	9,133	101	71.2
1927	12,715	12,046	24,761	5.7	25,324	1,889	736	21.3	581	40.8	8,639	96	70.2
Pere Marquette 1928	8,876	11,160	20,036	3.9	19,988	1,611	709	26.0	564	33.6	5,182	97	77.1
1927	8,976	10,132	19,108	4.4	18,678	1,535	671	25.8	541	32.5	4,739	99	70.6
Pitts. & Lake Erie.....1928	12,601	9,226	21,827	10.7	32,560	3,133	1,852	47.5	315	10.0	29,722	91	55.1
1927	12,203	8,794	20,997	4.2	33,887	3,016	1,758	45.2	316	11.0	28,635	89	51.9
Wabash 1928	14,329	13,700	28,029	3.1	28,072	1,759	685	21.6	664	45.9	7,454	114	78.2
1927	15,131	11,783	26,914	2.8	27,763	1,758	676	21.2	583	41.5	6,287	98	66.1
Central Eastern Region:													
Baltimore & Ohio.....1928	70,852	33,540	104,392	5.8	23,072	2,066	989	31.4	625	31.3	11,796	140	67.9
1927	69,738	36,884	106,622	5.8	20,591	2,019	978	32.5	631	31.1	12,136	143	68.4
Central of New Jersey...1928	16,755	11,120	27,875	6.3	21,653	1,988	940	31.5	298	16.1	12,037	145	52.7
1927	18,771	10,980	29,751	5.4	19,882	1,986	930	31.6	272	14.7	11,706	150	51.7
Chicago & Eastern Ill....1928	12,540	4,460	17,000	35.8	23,518	1,683	779	27.4	385	20.9	6,920	127	49.6
1927	12,788	4,682	17,470	31.0	22,431	1,653	780	29.5	409	21.5	7,557	131	58.1
Clev., Cin., Chi. & St. L..1928	18,417	21,460	39,877	4.8	27,803	2,123	973	28.9	594	32.8	9,987	110	58.3
1927	17,253	21,741	38,994	5.5	26,288	2,124	990	30.7	648	34.6	10,642	110	64.0
Elgin, Joliet & Eastern..1928	8,853	6,125	14,978	6.2	16,298	2,144	1,126	38.2	328	13.1	10,675	118	53.3
1927	8,949	6,995	15,944	5.5	15,493	2,148	1,139	39.5	310	12.0	10,735	113	50.5
Long Island 1928	1,702	4,704	6,406	1.4	5,343	860	337	25.5	87	6.0	1,405	301	30.8
1927	1,689	5,895	7,584	1.9	5,072	917	362	24.6	81	5.6	1,560	246	42.3
Pennsylvania System 1928	207,151	88,756	295,907	6.2	26,362	2,350	1,105	30.1	492	24.6	13,517	120	53.4
1927	206,897	86,965	293,862	6.3	23,346	2,117	988	30.3	489	24.9	13,261	118	53.7
Reading 1928	24,949	13,245	38,194	5.3	21,853	1,985	992	34.0	491	23.3	16,629	141	57.0
1927	24,209	12,651	36,860	2.8	21,445	1,909	961	35.2	525	24.5	17,093	151	62.2
Pocahontas Region:													
Chesapeake & Ohio.....1928	27,691	12,203	39,894	3.2	35,170	2,878	1,563	43.5	1,461	58.6	21,371	84	66.2
1927	26 866	16,803	43,669	2.9	30,404	2,773	1,504	43.9	1,438	58.0	23,185	90	73.8
Norfolk & Western.....1928	27,710	9,518	37,228	1.4	42,939	3,178	1,717	43.7	1,270	48.2	21,194	120	58.7
1927	26,696	10,349	37,045	1.2	40,110	3,039	1,642	44.5	1,303	49.2	21,626	127	61.4
Southern Region:													
Atlantic Coast Line.....1928	21,849	7,128	28,977	5.8	18,328	1,403	536	20.3	324	24.7	1,833	110	35.9
1927	21,907	7,836	29,743	5.8	18,261	1,450	576	21.9	400	28.7	2,334	111	43.3
Central of Georgia.....1928	4,759	4,331	9,090	4.4	18,593	1,313	545	21.2	515	33.2	2,467	131	55.2
1927	4,209	6,188	10,397	2.9	18,769	1,416	603	21.6	514	32.0	2,817	128	57.4
Ill. Cent. (inc. Y.&M.V.)1928	39,764	23,932	63,696	5.8	23,714	1,826	779	26.8	763	44.0	7,232	125	74.2
1927	38,803	30,509	69,312	6.9	22,707	1,808	794	28.1	766	42.6	8,052	117	78.0
Louisville & Nashville...1928	42,603	17,298	59,901	10.4	19,478	1,556	765	33.4	655	32.1	7,755	135	79.7
1927	39,554	21,380	60,934	11.2	17,252	1,484	721	34.1	697	34.5	8,413	140	86.7
Seaboard Air Line.....1928	15,820	6,350	22,170	8.3	16,973	1,359	541	21.3	378	26.4	1,868	135	48.3
1927	14,845	7,427	22,272	6.5	17,297	1,427	593	22.8	426	27.9	2,218	134	57.2
Southern 1928	46,689	17,929	64,618	9.6	18,752	1,377	568	22.5	418	27.6	4,024	151	51.9
1927	42,494	19,857	62,351	5.3	18,118	1,386	573	22.1	441	29.1	4,096	151	52.5
Northwestern Region:													
Chi. & North Western..1928	44,928	32,228	77,156	6.0	21,393	1,620	660	24.0	438	28.3	3,995	118	63.1
1927	46,892	32,349	79,241	7.1	19,050	1,529	629	22.5	416	27.9	3,898	114	63.4
Chi., Mil., St. P. & Pac..1928	50,194	29,651	79,845	3.0	23,886	1,862	803	25.8	622	37.6	4,415	123	76.4
1927	53,748	32,512	86,260	5.0	22,405	1,817	813	27.0	596	33.9	4,587	120	75.3
Chi., St. P., Minn. & Om.1928	2,610	10,060	12,670	6.5	16,315	1,253	553	23.5	470	28.3	3,452	116	65.7
1927	2,942	11,259	14,201	8.8	15,209	1,228	558	24.9	454	25.2	3,742	113	68.3
Great Northern 1928	41,291	22,127	63,418	3.3	28,282	2,500	1,218	32.0	807	39.7	6.165	112	72.2
1927	43,182	20,846	64,028	4.1	27,184	2,452	1,184	31.0	669	33.7	5,243	110	57.0
Minn., St. P. & S. S. M..1928	20,573	8,628	29,201	3.2	19,349	1,671	810	27.6	600	32.0	3,977	94	90.4
1927	21,108	9,128	30,236	3.5	18,034	1,551	748	27.6	574	31.3	3,955	92	72.0
Northern Pacific 1928	36,578	14,252	50,830	6.3	25,379	1,991	885	26.1	642	36.3	5,040	130	71.3
1927	38,037	13,825	51,862	5.5	23,423	1,921	895	27.2	586	31.4	4,693	127	61.0
Ore.-Wash. R.R. & Nav..1928	7,928	5,694	13,622	5.9	22,201	1,818	813	26.6	488	26.8	2,963	151	63.5
1927	7,847	7,066	14,913	3.7	20,898	1,808	862	27.8	449	22.5	3,106	157	59.5
Central Western Region:													
Atch., Top. & S. Fe (incl. 1928	55,958	19,855	75,813	5.4	32,830	2,147	731	20.1	643	48.9	4,661	103	84.1
P. & S. F.).....1927	56,738	19,398	76,136	5.1	29,525	2,083	706	20.2	617	47.3	4,512	105	82.6
Chicago & Alton.....1928	9,609	5,058	14,667	4.4	21,832	1,515	583	22.4	429	29.5	6,299	130	78.4
1927	9,699	5,490	15,189	4.7	19,020	1,470	556	22.2	364	25.9	5,551	148	67.8
Chi., Burl. & Quincy....1928	42,154	26,483	68,637	5.2	25,813	1,967	886	26.5	697	41.7	5,131	117	65.6
1927	44,309	24,880	69,189	5.9	22,502	1,730	755	24.7	552	34.9	4,093	120	60.9
Chi., Rock I. & Pacific..1928	27,832	21,765	49,597	6.7	19,719	1,525	642	24.2	587	36.9	3,850	135	70.9
1927	30,046	24,055	54,101	5.5	19,137	1,550	647	24.5	526	33.7	3,755	121	68.4
Denver & R. G. Wn....1928	10,680	6,605	17,285	2.8	19,607	1,703	676	23.5	470	31.0	3,170	170	61.0
1927	10,343	6,248	16,591	2.7	16,099	1,546	622	23.9	415	27.1	2,689	188	53.5
Oregon Short Line.....1928	8,184	7,038	15,222	4.4	24,844	1,919	782	24.6	700	43.4	4,196	108	81.7
1927	8,634	6,519	15,153	4.3	22,891	1,761	734	24.4	596	35.7	3,558	115	70.2
So. Pacific—Pacific Lines.1928	38,377	31,063	69,440	5.7	23,144	1,895	685	21.5	612	43.4	4,864	117	83.0
1927	36,200	32.526	68,726	5.1	22,281	1,895	663	21.5	583	43.3	4,571	118	79.1
Union Pacific 1928	19,354	14,444	33,798	9.2	38,903	2,110	720	19.7	1,192	91.9	10,749	100	124.4
1927	20,865	12,419	33,284	9.0	38,518	2,124	718	19.3	1,076	83.5	9,644	103	110.2
Southwestern Region:													
Gulf, Colo. & S. Fe....1928	8,894	5,037	13,931	3.4	27,946	2,053	869	25.2	497	30.4	3,583	92	58.9
1927	8,698	5,467	14,165	3.8	27,047	2,014	853	26.8	579	35.5	4,240	92	62.8
Mo.-Kans.-Texas Lines...1928	15,880	8,162	24,042	6.6	27,035	2,031	791	22.7	512	36.9	3,876	88	66.1
1927	16,135	6,897	23,032	6.3	25,416	1,968	781	23.0	487	34.1	3,530	94	60.2
Missouri Pacific 1928	27,147	23,944	51,091	6.0	24,083	1,781	744	24.5	707	43.7	4,862	119	83.3
1927	27,607	20,638	48,245	5.6	22,381	1,679	704	25.1	665	41.6	4,376	119	73.7
St. Louis-San Francisco..1928	22,159	11,353	33,512	3.8	19,324	1,460	605	24.3	523	34.0	3,356	142	63.9
1927	20,655	11,394	32,049	3.6	20,152	1,542	659	25.7	548	33.6	3,564	139	60.3
Texas & New Orleans...1928	11,324	15,747	27,071	5.1	18,385	1,305	524	22.5	494	32.5	2,840	95	73.9
1927	11,410	16,420	27,830	4.9	18,085	1,350	547	24.1	506	32.9	3,091	101	81.6
Texas & Pacific.....1928	6,064	8,907	14,971	4.5	22,647	1,776	717	26.5	759	48.2	5,637	88	72.4
1927	6,051	6,364	12,415	6.0	21,522	1,738	651	22.1	539	38.9	3,320	98	53.0

News Of The Week

(*Continued from page 1033*)

and generally fool-proof design. In subsequent discussion, it was developed that engine crews generally like this valve gear because of its ease of reversing, general ease of handling, and the fact that it is necessary to lubricate the gear at only three points as compared to about 36 or more points in the conventional valve gears now generally used.

Cascade Tunnel to Open in December

The Great Northern plans to open its eight-mile tunnel through the Cascade mountains to traffic and to change the railway's entire crossing of the Cascades, including about 75 miles of main line, from steam to electrical operation on December 28. The tunnel, which is lined with concrete, with the relocation of 18 miles of approach on the east slope, has cost approximately $25,000,000.

The new route is nine miles shorter than the old one and has a summit elevation 502 ft. lower. It eliminates curvature equivalent to nine complete circles and has lighter grades. By reason of these improvements, the railway will be able to run passenger trains the entire distance between St. Paul, Minn., and the Pacific Coast (about 1800 miles) without the use of helper locomotives.

Nearly eight miles of snowsheds, the maintenance of which cost the railway $500,000 a year, are eliminated. By reason of the fact that the new approach will have no serious snow problem, since the tunnel carries the tracks under the zone of heaviest snowfall on the entire system, the improvements are expected to assure the maintenance of faster train schedules the year around and substantially reduce the expense of keeping the Cascade crossing open during the winter months.

There are only four railway tunnels in the world that are longer than the Cascade. These include the Simplon, 12 miles in length, and the St. Gothard, 9 miles, both between Switzerland and Italy; the Loetschberg, 9 miles, in Switzerland and the Mt. Cenis which is 8.18 miles. Plans for the formal opening of the tunnel are now being prepared.

Sixth International Younger Men's Conferences

The sixth international Younger Men's Conference of the Railroad Y.M.C.A. was held at the Mayflower hotel, Washington, beginning on November 21, under the auspices of the National Council of the Y.M.C.A. The conference was opened by L. L. Lee, president of the 1928 conference and greetings were extended by B. R. Tolson, manager of the Washington Terminal Company, William Knowles Cooper, general secretary of the Y. M. C. A., and F. J. Bresnahan, representing the younger railroad men of Washington.

The three-day program included several addresses and several group meetings for conference and discussion. President Coolidge was to receive the delegates at the White House on November 22 and the conference dinner was to be held in the evening, B. R. Tolson presiding. A program of sight-seeing also was arranged.

Revenues and Expenses by Class of Service

The Interstate Commerce Commission has issued, as Statement No. 28,150, the first of a series compiled by the Bureau of Statistics showing the operating revenues and operating expenses of Class I railways by class of service for the year 1927. In the Statistics of Railways for recent years a statement has appeared annually showing the amount of each primary expense account chargeable to the freight service and the amount chargeable to passenger and allied services, as reported by the carriers under the rules prescribed by the commission. To make this information available before the Statistics of Railways appears, it has been decided to publish this statement separately and to omit it from the blue book. The totals are subdivided by operating regions as well as by districts. Some related data are also included in the present publication.

Of the total railway operating expenses for 1927, the amount assigned and apportioned to freight service is $3,362,723,443 and the amount assigned and apportioned to passenger and allied services is $1,205,133,234.

Kansas Floods Demoralize Train Service

Heavy rains over Kansas during the week ending November 17 created a flood stage in rivers in eastern Kansas and Western Missouri which demoralized train service on parts of the Atchison, Topeka & Santa Fe, the Chicago, Rock Island & Pacific, the Chicago, Burlington & Quincy, the Kansas City Southern, the Missouri-Kansas-Texas, the Missouri Pacific, the St. Louis-San Francisco and the Wabash. Trouble was first experienced in Kansas on November 16 when passenger trains were delayed in reaching Kansas City, Mo. The greatest delays were reported on lines south and southwest of Kansas City, although a few trains into St. Louis, Mo., from the west were a few hours late in arriving. Particular difficulty was reported at Coffeyville, Kan., Arkansas City, Winfield, Mulvane, Eldorado, Neodesha, Garnett, Ottawa, Paola and Augusta, and at Birmingham, Mo., Pleasant Hill, Windsor, Lamine, Blackwater and Nelson where rivers had overflowed their banks and flood waters had either washed out tracks or covered them to a depth sufficient to force the temporary abandonment of train service. Rivers which gave the railroads trouble included the Arkansas, the Missouri, the Kansas, the Blue, the Verdigris, the Marais Des Cygnes, the Walnut, the Grand, the Neosho, the Osage and Whitewater. The Frisco and the Kansas City Southern which uses the Frisco tracks north of Grandview, Mo., experienced difficulty in operating into Kansas City because of the flood in the valley of the Blue River. On November 17 Kansas City Southern trains were forced to make Grandview their northerly terminus and passengers were taken to and from the union station by motor coaches.

The Frisco annulled a number of its passenger trains out of Kansas City on the night of November 17. Railway officers at Kansas City were quoted by newspapers as characterizing the tie up on their lines to the south and southwest as the worst for quite a number of years. It was expected that the majority of passenger trains operating into and through Kansas City would be returned to normal schedules by November 21 or 22.

New Jersey Grade Crossing Order Upheld

The Supreme Court of the United States, in a decision rendered on November 19, affirmed decisions of a circuit judge and two district judges sitting in the district court of New Jersey, which had denied an injunction sought by the Lehigh Valley against an order of the New Jersey Board of Public Utility Commissioners requiring the elimination of two grade crossings in Hillsborough township and the substitution of an overhead crossing to cost the railroad $324,000. The railroad objected that the expense was unreasonable on the ground that the crossing could have been constructed by an expenditure of $100,000 less on a plan which would have caused a 6-degree curve in the state highway and that the required expenditure would impose a direct burden on interstate commerce.

The Supreme Court said that it was not for it to cut down such expenditures merely because more economical ways suggest themselves and that in the circumstances it did not think the expenditures go beyond the line of reasonableness. The court deprecated "the impression, apparently entertained by some, that in the safeguarding of railroads crossings by order of state or local authority the exercise of police power escapes the ordinary constitutional limitation of reasonableness of cost", which it said "is apt to give to local boards a sense of freedom which tempts to arbitrariness and extravagance". It becomes the duty of the court, according to the opinion by Chief Justice Taft, where the cost is questioned to determine whether it is within reasonable limits, and the case was said to be one "which is near the line of reasonableness, but for the reasons given we think it does not go beyond the line."

It was certainly not intended by the Transportation Act to take from the states or to thrust upon the Interstate Commerce Commission investigation into parochial matters like this, unless by reason of their effect on economical management and service, their general bearing is clear."

Justice McReynolds in a dissenting opinion said the action of the state commissioners was unreasonable and arbitrary and that "to permit the commissioners to impose a charge of $100,000 upon the railroad under the pretense of objection to a 6 per cent curve in a country road is to uphold a plain abuse of power."

A. R. A. Directors Meet

The annual meeting of the board of directors of the American Railway Association was held Wednesday, November 21 at the Biltmore Hotel, New York. The procedure of the meetnig consisted of the election of officers and the hearing of reports from the Car Service Division, the Bureau of Railway Economics and the various committees.

R. H. Aishton was re-elected president of the organization, while other officers were named as follows: First vice-president, W. G. Besler, chairman of the board of the Central of New Jersey; second vice-president, Hale Holden, president of the Chicago Burlington & Quincy; Alfred P. Thom of Washington, re-elected general counsel and H. J. Forster of New York, secretary and treasurer.

The board also elected to membership Fred W. Sargent, president of the Chicago & North Western and J. E. Gorman, president of the Chicago, Rock Island & Pacific, to fill vacancies on the board caused by the resignation of H. E. Byram, chairman of the board of the Chicago, Milwaukee, St. Paul & Pacific and the death of Howard Elliott, chairman of the board of the Northern Pacific

The board also re-elected to membership on the board E. W. Beatty, president of the Canadian Pacific; P. E. Crowley, president of the New York Central; Daniel Willard, president of the Baltimore & Ohio; and C. H. Markham, chairman of the board of the Illinois Central.

Aside from the statistical review of the first nine months of the current year, prepared by the Bureau of Railway Economics and published elsewhere in this issue, the members of the board heard the annual report of the Car Service Division which showed that in the first eight months this year, the distance traveled each day per freight train averaged more than 309 miles, an increase of approximately 20 per cent over that in 1923, when the average was 259 miles.

This speeding up of freight service was ascribed in large degree to more than six and a half billions of capital expenditures made since federal control which expenditure has provided new and improved equipment and other facilities, as well as to the highly satisfactory condition of equipment, particularly locomotives; elimination of many delays at terminals, and improvements in methods of operation.

Loading of revenue freight, according to the report, for the first 44 weeks this year—that is, from January 1 to November 3—totaled 44,021,267 cars, a reduction of 655,434 cars, or 1.5 per cent compared with the corresponding period in 1927, and a reduction of 1,470,721 cars, or 32 per cent, compared with the same period in 1926.

Except for an increase in the movement of grain and grain products, which, so far, has been the heaviest for any corresponding period since 1923, and miscellaneous freight, the heaviest on record, loading of all other commodities has been less than in 1927 and 1926. But for a few isolated instances, and then only of short duration, freight traffic so far this year has been handled without any of the old car shortage difficulties.

Railroad Division, A. S. M. E. Adopts Policies for Its Activities

The Executive Committee, Railroad Division, American Society of Mechanical Engineers, recently adopted a statement of policies and objects to serve as a general basis for its future work and activities. These policies, according to a statement which was released by the committee on Monday, November 5, 1928, will be followed by the Executive Committee in the future conduct of the affairs of the Railroad Division as far as possible. In connection with the stated policies under which it is now operating, the Railroad Division, Sub-Committee on Relations with the Local Sections, has been enlarged to ten members. Each member of this sub-committee has been selected from A.S.M.E. local section territories in which there are one or more large railroad or railway supply industrial centers.

The members of this sub-committee have full authority to represent the Executive Committee in all matters of concern to the Railroad Division in their respective territories. This sub-committee has been assigned the work of co-operating with all the local sections, except the Metropolitan Section, the relations with which are taken care of by another sub-committee under the chairmanship of A. F. Stuebing, chief engineer, Bradford Corporation, New York. Following is the personnel of the Railroad Division, Sub-Committee on Relations with the Local Sections:

Eliot Sumner (chairman), assistant to general superintendent motive power, Pennsylvania, Broad Street Station, Philadelphia, Pa.
L. P. Michael, mechanical engineer, Chicago & North Western, Chicago.
T. C. McBride, consulting engineer, railroad department, Worthington Pump & Manufacturing Company, Philadelphia, Pa.
J. C. McCune, assistant director of engineering, Westinghouse Air Brake Company, Pittsburgh, Pa.
C. E. Barba, mechanical engineer, Boston & Maine, Boston, Mass.
E. D. Campbell, American Car & Foundry Company, St. Louis, Mo.
F. E. Russell, mechanical engineer, Southern Pacific, San Francisco, Cal.
George Hillyer, mechanical engineer, Southern, Washington, D. C.
Professor A. J. Wood, Pennsylvania State College, State College, Pa.
D. W. Robertson, department of special development, National Malleable & Steel Castings Company, Cleveland, Ohio.

A new feature has been incorporated into the program of the Railroad Division, which the Executive Committee plans to make an annual event. The Railroad Division, Sub-Committee on Meetings and Papers has culled the entire program of the society's annual meeting and is sponsoring a railroad program of 33 papers, only four of which are being presented by the Railroad Division. This program was published in the October 27, 1928, issue of the *Railway Age*, page 826.

Utilizing the annual meeting of the society as a national meeting, together with the National Exposition of Power and Mechanical Engineering, which is held during the same week in the Grand Central Palace, conforms to the policies and objects under which the Railroad Division is now operating. Following is part of the statement of policies and objects:

Maintain a professional division of the A. S. M. E. in which mechanical engineers employed in both the railroad and the railway supply industries are members on the same basis, having equal privileges of the floor in the presentation and discussion of papers.

Advance and promote mechanical engineering as a profession in the railroad and railway supply industries.

Endeavor to avoid, as much as possible, duplication of effort on the part of the American Society of Mechanical Engineers and the various official and semi technical railway associations.

Afford a "technical clearing house" for the presentation of the mechanical engineering phases of proprietary development that can not be officially approved by the railroads, but, on the other hand, can be considered and discussed from a technical and professional standpoint.

Endeavor to obtain papers on advanced technical theories of design, etc., the development of which has not as yet reached the stage to warrant consideration in practical applications.

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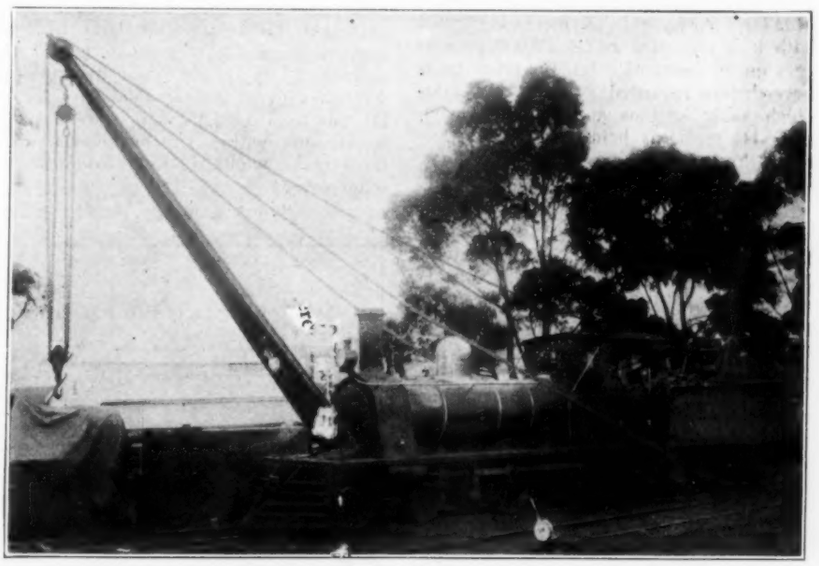

Wrecking Crane on South Australian Railways
This crane was in use until late in 1927. W. A. Webb, former vice-president of the Missouri-Kansas-Texas and the St. Louis Southwestern and president of the Cambria & Indiana, is commissioner of the South Australian Railways

Foreign

New Container Used in England

The Southern Railway of Great Britain has recently placed in service 100 new insulated containers, designed to handle meat traffic between Southampton and London. At Southampton these containers are lowered into the holds of ships where they are loaded with meat from cold storage and then hoisted onto the railway cars. Upon arrival at London, the containers are transferred to motor trucks for highway movement to destination.

The containers are box-like in appearance and carry a load of about three and one-half tons. They are equipped with a pair of double doors on each side and at one end, while insulation is provided by the introduction of cork in the sides, roof and doors, with asbestos sheets insulating the floor. All doors are airtight and thus an even temperature is maintained within. The containers, while designed primarily for the meat traffic, are also in use for the transportation of other perishables.

Effect of Special Low Passenger Rates in England

The effect of the special reduced passenger rates, inaugurated sometime ago by English railways in their efforts to check the diversion of passengers to their highway competitors, is indicated in recently published figures on the number of passengers carried under these special schedules.

The cheaper rates were designed specifically to meet the motor coach competition and thus were confined to one-day, half-day and week-end tickets in carefully selected localities. During the first seven months of 1928 there were 26,000,000 more passengers who traveled under the special rates than during the corresponding period of 1927. Although this increase carried with it a reduction of 16,000,000 passengers under standard rates, the situation is nevertheless regarded as favorable, inasmuch as indications are that some considerable traffic is being won back from the highway.

Finnish State Railways

The total length of railway lines in Finland at the close of 1927 amounted to 2,900 miles, as compared with a mileage of 2,200 in 1913, according to recent reports published by the United States Department of Commerce. For the five-year period, 1926-1930, a construction plan which involves the building of about 520 miles of new railway has been outlined.

In Finland, as in most all countries, railway traffic developed rapidly before the war since the increase from 1900 to 1913 was 105 per cent. During the war period, however, while traffic increased abnormally for a time, its increase was abruptly halted for a couple of years following the conflict. Since 1920, traffic has resumed its normal trend and growth has approached the pre-war rate.

Passenger traffic, however, has not followed this trend of total traffic since 1925 when its growth was checked. Higher rates and motor coach competition are assigned as the reasons for this. Revenues of the Finnish railways have practically doubled since 1913 but earnings have not greatly improved since it is pointed out that expenses have increased more rapidly than revenues.

Malayan Railway Mileage and Revenues

Total railway mileage of the Malaya Peninsula at the close of 1927 amounted to 1,200, of which 753 miles were main line, 161 miles branch line, 166 miles sidings and 120 miles leased line, according to reports on Malay's railways made public by the U. S. Department of Commerce.

The railroads in the Malay Peninsula south of Siam are all operated by the government of the Federated Malay States which also owns all of the lines except a stretch of 120 miles through the Unfederated Malay State of Johore which is leased from the Johore government.

The total freight traffic in 1927 amounted to 2,463,185 tons as compared with 2,259,005 tons in 1926. Railway operating revenues amounted to the equivalent of $11,797,500 as compared with $11,184,500 during 1926. Other revenues amounted to $1,321,200 in 1927 as compared with $1,150,500 during 1926. Railway operating expenses in 1927 were $9,858,493 and other expenses $1,227,700 in comparison respectively with $7,612,900 and $1,158,500 during 1926. A large portion of the heavy expenditures for 1927 was necessitated by repairs to areas damaged by floods.

Czechoslovakian Railways

Revenues equivalent to approximately $126,029,400, an increase of about $8,211,700 over 1926 receipts, were reported by the Czechoslovakian railways for 1927, according to statistics published by the United States Department of Commerce.

As compared with the preceding year, passenger traffic decreased about three per cent while during the same period the carloadings of freight traffic increased by 539,612 cars to a 1927 total of 6,127,814 Of this total 5,435,482 cars were destined to stations within Czechoslovakia while the remaining 692,332 were forwarded to other countries.

* * *

On the Boston & Albany

Traffic

Container Rates Suspended

The Interstate Commerce Commission on November 20 suspended from November 21 until June 21, 1929, the operation of schedules published in a Missouri Pacific tariff proposing to establish rates on merchandise when transported in steel shipping containers, loaded on container cars, between St. Louis, Mo., and points in Texas, Arkansas, Kansas, Nebraska and Colorado. Protests against the tariff were filed by Chicago and New York shippers, and by other parties, averring that the proposed rates, lower than present l.c.l. rates, would constitute a discrimination in favor of St. Louis shippers.

Rates on Traffic Between United States and Canada

The Interstate Commerce Commission has made public a report by Commissioner Farrell, following the recent argument on the question of the publication of rates on traffic between the United States and Canada, expressing the conclusion that no change in connection with the publication of such rates or rates to and from Mexico should be required until after Congress has been afforded an opportunity to act upon recommendations concerning amendments to and changes in pertinent provisions of the interstate commerce act to be made by the commission in the premises. The commission heard oral argument on October 11 and received briefs on questions which arose as the result of the decision of the Supreme Court of the United States in the News Syndicate Company case which held that it was the duty of the United States carriers to establish just and reasonable rates for transportation between the international boundary and points in this country. One of the questions considered was as to whether there should be separate tariff publication of rates to and from the boundary previously covered only by joint through rates.

Coal, Wheat and Automobile Loadings Heavy

"The movement of wheat", says the report of the Car Service Division made to the directors of the American Railway Association at their meeting in New York on November 21, "particularly in the southwest, has been made more difficult through the extensive adoption of combination harvester-threshers, trucks and other labor saving machinery. In the southwestern winter wheat states, 32,500 combine harvester-threshers were used this year, an increase of 132 per cent over the number in use in 1926. Under the present system of marketing, the railroads are being called upon to move in sixty or ninety days as large a proportion of the crop as was formerly moved in six months or more.

"The grain loading season in the south-

west this year was started with the largest supply of empty box cars, suitable for grain loading, ever stored in that territory. In spite of this these lines were forced to call on the Car Service Division for additional assistance and also placed orders with their connection for equipment. Through the orders of the Car Service Division, there were turned over to the railroads in that territory approximately 9,000 cars at the rate of 450 cars per day. This, together with assistance received from other lines without Car Service Division orders, prevented any serious shortage.

"In the northwest, some inability of terminal markets to take the grain into elevators as fast as it arrived was experienced. This caused an accumulation that in turn was responsible for some slight car shortage, but the movement was handled without the necessity for an embargo.

"The automobile industry in August and September exceeded all previous records for production, necessitating the rapid speeding up of automobile cars. This movement was taken care of, however, without car shortage.

"Loading of perishable traffic has been the heaviest this fall on record and while there has been a tight car supply at times, no serious shortages have existed. Reports indicate that the movement was handled more promptly than ever before."

In respect to coal shipments, and the use of open top cars, the report said: "Production of bituminous coal for the calendar year to October 27 totaled 397,368,000 tons, compared with production of 434,011,000 tons for the same period of 1927.

"Bituminous coal in reserve July 1, 1928, shows a decrease of 21 million tons or 34.2 per cent compared with the same date in 1927.

"There has been a very considerable increase in the coal movement in the past two months. Since the first of September the loading has averaged approximately a million and a half tons per week over the loading prior thereto. During the same period the loading of other commodities in open top cars, including ore, steel, sand, stone and gravel, shows an increase of 69,519 cars or 8.5 per cent as compared with the same period of 1927. Surplus serviceable open top cars have decreased from 116,521 as of July 8th to 17,229 as of October 23rd.

Bituminous coal dumped at Lake Erie ports for shipment up the lakes totaled 28,652,275 tons from January 1 to October 21. This exceeded the corresponding period in any of the past six years with the exception of 1927, when the amount dumped was 29,834,421 tons.

Bituminous coal shipped to New England via tide water during the first nine months this year amounted to 8,485,895 gross tons compared with 10,344,854 gross tons during the corresponding period last year, while Bituminous and Anthracite coal sent by rail to that part of the country from January 1 to October 20 this year amounted to 214,921 cars compared with 235,712 cars during the same period last year.

Equipment and Supplies

Locomotives

THE WHEELING & LAKE ERIE will build 5 six-wheel and 5 eight-wheel switching locomotives in its own shops.

THE LOUISVILLE & NASHVILLE has authorized the purchase of 24 freight locomotives.

THE STEEL COMPANY OF CANADA has ordered from the Electro-Motive Company a 300 hp. power plant which will be used in converting a locomotive to gas-electric drive.

Freight Cars

THE SEABOARD AIR LINE contemplates buying 200 all steel hopper cars.

THE MISSOURI PACIFIC is inquiring for 100 steel underframes.

THE FRUIT GROWERS EXPRESS is inquiring for 50 underframes.

THE CHICAGO, ROCK ISLAND & PACIFIC is inquiring for 50 caboose cars.

THE CHICAGO ROCK ISLAND & PACIFIC is inquiring for 250 ballast cars.

THE HERCULES POWDER COMPANY, Wilmington, Del., has ordered 10 tank cars of 50 tons' capacity from the American Car & Foundry Company.

THE ST. LOUIS, SOUTHWESTERN has ordered from the American Car & Foundry Company five steel underframes and steel parts for rebuilding five Rodger ballast cars.

THE WESTERN PACIFIC is inquiring for 50 tank cars. This is in addition to a previous inquiry for 50 flat and 250 automobile cars reported in the *Railway Age* of November 17.

THE BOSTON & MAINE is inquiring for 500 hopper cars of 70 tons' capacity. In the *Railway Age* of November 17 it was reported that the company contemplated buying this equipment.

THE CHICAGO & EASTERN ILLINOIS may buy 200 single sheathed automobile cars in addition to the 100 previously ordered and reported in the *Railway Age* of August 4.

THE CHICAGO & NORTHWESTERN has ordered 400 gondola cars from the Standard Steel Car Company. Inquiry for this equipment was reported in the *Railway Age* of November 10.

THE WABASH has ordered 1500 automobile cars from the American Car & Foundry Company and 500 from the Pullman Car & Manufacturing Corporation. Inquiry for this equipment was reported in the *Railway Age* of November 3.

THE NEVADA CONSOLIDATED COPPER COMPANY has ordered 50 Ingoldsby type ore cars of 80 tons' capacity from the Koppel Industrial Car & Equipment Company. This is in addition to 20 ore cars ordered from the same builder and reported in the *Railway Age* of November 17.

THE LOUISVILLE & NASHVILLE has authorized the purchase of 1200 gondola cars of 50 tons' capacity, 250 gondola cars of 70 tons' capacity, 750 automobile cars of 50 tons' capacity and 40-ft. 6-in. long, 300 box cars of 50 tons' capacity and 40-ft. 6-in. long.

THE CHICAGO & NORTH WESTERN has ordered 100 steel underframes for wooden caboose cars from the American Car & Foundry Company. Inquiry for this equipment was reported in the *Railway Age* of October 20. This road is also inquiring for 200 steel ballast cars of 50 tons' capacity, Enterprise type. This is in addition to its previous inquiry for cars as was reported in the *Railway Age* of November 10.

Passenger Cars

THE CHICAGO, ROCK ISLAND & PACIFIC is inquiring for two parlor cars

THE GREEN BAY & WESTERN is inquiring for four or five combination baggage and mail cars.

THE LOUISVILLE & NASHVILLE has authorized the purchase of 12 coaches, 6 baggage cars and 4 dining cars.

THE CHESAPEAKE & OHIO has given a contract for six gas-electric rail motor cars to the J. G. Brill Company. Inquiry for this equipment was reported in the *Railway Age* of October 27.

THE COLORADO & SOUTHERN has placed an order with the Pullman Car & Manufacturing Corporation for one gas-electric rail motor car to be equipped with a 400 hp. Electro-Motive Company power plant.

THE NORTHWESTERN PACIFIC has ordered five motor coaches and five trailer coaches from the St. Louis Car Company. Inquiry for this equipment was reported in the *Railway Age* of September 15.

THE CHICAGO, ST. PAUL, MINNEAPOLIS & OMAHA has ordered from the Electro-Motive Company eight gas-electric power plants for installation in four car bodies to be built by the Pullman Car & Manufacturing Corporation; each car will be equipped with two 300 hp. plants.

THE CHICAGO & NORTH WESTERN has placed an order with the Electro-Motive Company for a total of 14 gas-electric power plants for installation in car bodies to be built by the Pullman Car & Manufacturing Corporation. Two cars will be equipped with single 400 hp. power plants, four cars with single 300 hp. plants and four with two 300 hp. plants each.

Iron and Steel

THE LOUISVILLE & NASHVILLE has authorized the purchase of 65,000 tons of 100-lb. rail, from the Tennessee Coal, Iron & Railroad Company.

THE LOUISVILLE & NASHVILLE has ordered 1,300 tons of structural steel for miscellaneous bridge work from the American Bridge Company.

Signaling

THE GENERAL ELECTRIC COMPANY has ordered from the General Railway Signal Company, 20 sets of intermittent, inductive, auto-manual, train control engine equipment, for installation on electric locomotives it is building for the Cleveland Terminals Company.

Machinery and Tools

THE ERIE has ordered two 25-ton locomotive cranes from the Industrial Brown Hoist Corporation.

THE NILES-BEMENT-POND COMPANY has received orders for railroad equipment machine tools, including a Niles-Acme 16-in. shaper, a 79-in. driving wheel lathe, a heavy four-spindle mud ring drill and a No. 7 car box borer.

THE MISSOURI-KANSAS-TEXAS has ordered for its Smithville, Tex., shops one Putnam heavy duty motor driven axle lathe, and one Putnam 48-in. car wheel borer, motor driven, from Manning, Maxwell & Moore, Inc.

Miscellaneous

THE DELAWARE, LACKAWANNA & WESTERN has placed an order with the Locomotive Firebox Company for 60 syphons to equip 20 new Mountain-type locomotives, each of which will have two syphons in the fire box and one in the combustion chamber. This company has also received orders for syphons from the Louisville & Nashville for 24 locomotives, the Western Pacific for 10, the Denver & Rio Grande Western for 10, the Baltimore & Ohio for 2 and the Lehigh Valley for 2.

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On the Pennsylvania at Trenton, N. J.

Supply Trade

A. J. Gates, representative of the **Baker-Raulang Company,** Cleveland, Ohio, has been promoted to chief sales executive.

The Botfield Refractories Company, Philadelphia, Pa., has appointed the Marshall Supply Company, Inc., operating in Pittsburgh, Kansas and Tulsa, Okla., distributor of all its products.

C. H. MacDonald, manager of the market research department of the **Colorado Fuel & Iron Company,** has also been appointed director of sales.

J. H. Chubb has been appointed manager, service bureau, of the **Pennsylvania-Dixie Cement Corporation,** with headquarters at the New York office, 131 East Forty-Sixth street.

W. D. Otter, with office in the Rialto building, San Francisco, Cal., has been appointed Pacific Coast representative of the **Locomotive Finished Material Company,** Atchison, Kan.

Vernon C. Ward, formerly manager of sales of the steel construction department of the **Jones & Laughlin Steel Corporation,** has been appointed vice-president of the **J. B. French Company,** Chicago.

Frank J. Baumis has resigned as president of the Shaw Crane-Putnam Machine Company, Inc., and as vice-president and director of Manning, Maxwell & Moore, Inc. to become associated on December 1, with the **Ingersoll-Rand Company,** New York.

The Wagner Electric Corporation, St. Louis, Mo., has moved its Los Angeles, Cal., branch office and service station to 1220 S. Hope st. The removal involves all local departments, including the motor, transformer and fan as well as the service station.

F. H. Loomis, who has been at the head of the strip division of the **Republic Iron & Steel Company,** Youngstown, Ohio, has been promoted to assistant general manager of sales to succeed **Alexander E. Walker,** who has been promoted to general manager of sales.

C. B. Moore, vice-president of the **Oxweld Railroad Service Company** with headquarters at Chicago, has been elected chairman of the board. **J. H. Rodger,** formerly vice-president of the Safety Car Heating & Lighting Company has been elected vice-president of the Oxweld Railroad Service Company.

The officers and directors of the **National Equipment Corporation,** Milwaukee, Wis. which has acquired the **Koehring Company, the T. L. Smith Company, the Insley Company** and the **Parsons Company,** as reported in the *Railway Age* of November 17, are: president and treasurer, **Philip A. Koehring** formerly president and general manager and now general manager of the Koehring Company; vice-presidents, **W. J. Koehring,** formerly and now vice-president of the Koehring Company; **W. H. Insley,** formerly president of the Insley Company, **Harold E. Smith,** formerly president of the Smith Company and **H. C. McCardell,** formerly president and general manager of the Parsons Company; Secretary **W. J. Zimmers,** and directors are **J. E. Uehlein, R. A. Uehlein, Willits Pollock,** and **J. W. Kieckhefer.**

The American Electric Switch Corporation, Minerva, Ohio now has a direct factory representative in the Metropolitan district discontinuing the services of Holland & Monaghan, manufacturer's representatives. The New York office and warehouse is located at 430 East Fifty-third street, New York, with **G. E. Lindstrom** as manager.

The Independent Pneumatic Tool Company, Chicago, will build an addition to its Factory at Aurora, Ill. The new structure will consist of a modern, fireproof, concrete construction building and will add 36,000 sq. ft. to the present capacity. Plans have been drawn and approved and work will commence shortly.

Obituary

James T. Milner, vice-president of the Standard Car Truck Company, Chicago, died on November 19 at Coral Gables, Fla., from complications following a paralytic stroke. He was born on November 29, 1861, at Norwich, N. Y., and entered the employ of the Pullman Company in 1880. He was later promoted to assistant purchasing agent,

James T. Milner

which position he held until 1893 when he resigned to become western sales agent of the Pressed Steel Car Company with headquarters at Chicago, which position he held until 1901 when he engaged in the railway supply business until 1904. In 1908 he entered the employ of the Standard Car Truck Company as vice-president.

Construction

ATCHISON, TOPEKA & SANTA FE.—The Interstate Commerce Commission on November 17 made public a proposed report by Examiner H. C. Davis recommending denial of the application of the Pecos & Northern Texas for authority to build a line from Hale Center to Parmerton, Tex. 66 miles. The application was opposed by the Colorado & Southern.

CANADIAN NATIONAL.—By an agreement effected with the promoters of the Sherritt-Gordon mine in Manitoba, this company will build a branch into that property from the line recently completed to the Flin Flon property; 42 miles. Under the arrangement the promoters provide cash guarantee of $1,500,000 together with a cash bonus of $125,000 for quick construction. The Dominion Construction Company, Winnipeg, will build the line.

CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC.—A contract for the excavation of about 250,000 cu. yd. of earth for track depression over a distance of about 2.5 miles at Milwaukee, Wis., has been let to the H. W. Nelson Company, Chicago. Track will not be laid until some future date and temporary trestle crossings over the depression will be constructed by company forces.

CHICAGO & NORTH WESTERN.—This company has applied to the Interstate Commerce Commission for authority to build an extension of its Marenisco line, in Gogebic county, Mich., 4½ miles.

MISSOURI PACIFIC.—A contract has been let to W. P. McGeorge & Co., Pine Bluff, Ark., and Cape Girardeau, Mo., for the construction of a line between Illmo, Mo., and a point south of Cape Girardeau, 6 miles.

MISSOURI PACIFIC.—The New Orleans Texas & Mexico has applied to the Interstate Commerce Commission for a certificate authorizing the construction and operation of a line from the east bank of the Mississippi river at or near Baton Rouge, La., to a point at or near New Orleans, La., where connections may be had with the tracks of various lines, a distance of 82 miles, for the purpose of affording the Missouri Pacific system a new entrance to New Orleans. Between Baton Rouge and New Orleans the company now uses the tracks of the Yazoo & Mississippi Valley, through a trackage agreement under which it cannot participate in local business. The application states that the present line of the Missouri Pacific system from St. Louis to New Orleans is nearly one hundred miles longer than that of its strongest competitor and that the use of the proposed line would reduce this excess distance to about 43 miles. It is also stated that the construction and operation of the proposed line will, in the opinion of the applicant, result in the construction of a bridge over the Mississippi at or near Baton Rouge that will be used in connection with the proposed extension. "The successful and economical operation of applicant's line of railroad," it says, "requires in part different terminal arrangements within the New Orleans switching district. Also applicant should be relieved from the expenses and delays incident to the operation of a ferry across the Mississippi river; should be permitted to participate in traffic originating at Baton Rouge, La., the New Orleans switching district, and at all points between; should provide more expeditious routes for the movement of traffic between points west of the Mississippi river on the one hand and New Orleans and points east of the Mississippi river on the other hand, and as a subsidiary of the Missouri Pacific Railroad Company should provide for that company a more expeditious and less expensive route to and from the New Orleans switching district with the removal of present disadvantages of crossing the Mississippi river by means of a ferry and with the providing of adequate terminal facilities."

NASHVILLE, CHATTANOOGA & ST. LOUIS.—Plans have been prepared for the construction of a passenger station at Atlanta, Ga., which will include a two-story brick building over the station tracks, three butterfly train sheds with a maximum length of 1,250 ft. and five through and one spur tracks. The approximate cost of this work will be $350,000.

OWENSBORO-ROCKPORT BRIDGE COMPANY.—This company has applied to the Interstate Commerce Commission for authority to construct a new line between Owensboro, Ky., and Rockport, Ind., including a bridge across the Ohio river and approximately 12 miles of track.

PENNSYLVANIA.—This company has let a contract to the Arthur McMullen Co., New York City, for the construction of masonry for the piers of the New Hackensack river bridge on its line at Marion, N. J. Approximately $1,000,000 is involved in this contract.

PITTSBURGH & WEST VIRGINIA.—The Interstate Commerce Commission has denied the petitions of the Baltimore & Ohio and the Pennsylvania for a reconsideration of the proceedings in which this company was granted a certificate for the construction of an extension from Cochran's Mill, near Pittsburgh, to Connellsville, Pa., 38 miles. The certificate was granted by a vote of 5 to 4 and a previous request for reconsideration was not granted because of a tie vote of the commission. Meanwhile the P. & W. V. had notified the commission that it had begun construction work on the proposed extension.

PORT TERMINAL ASSOCIATION.—A contract has been awarded to C. K. Horton, Houston, Tex., for the construction of a four-mile extension of this railway at Houston at a cost of $90,300.

SAN LUIS VALLEY SOUTHERN.—This company plans the construction of and has surveyed the route for an extension from Jaroso, Colo., to Questa, N. M., 22 miles, which will involve an expenditure of about $300,000. It is planned to begin construction about March 1, 1929.

ST. LOUIS, BROWNVILLE & MEXICO.—This company has applied to the Interstate Commerce Commission for a certificate for an extension from Weslaco, Tex., a distance of 10 miles.

ST. LOUIS PUBLIC SERVICE BOARD.—A contract has been let to the Frazier-Davis Construction Company, St. Louis, Mo., for the construction of the timber deck and railroad approach to the Municipal bridge at St. Louis at a cost of about $203,000.

SOUTHERN PACIFIC.—The secretary of war has approved the plans of this company for the construction of a bridge over Carquinez Straits, near San Francisco, Cal.

TEXAS-NEW MEXICO.—A contract has been let to Allhands & Davis for the grading for this railroad, which is a subsidiary of the Texas & Pacific, from Monahans, Tex., on the T. & P., through Ward and Winkler counties to the New Mexico state line, about 40 miles. Track laying will be done by company forces.

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On the Santa Fe at Albuquerque, N. M.

Financial

ATCHISON TOPEKA & SANTA FE.—See Southern Pacific.

ATLANTIC COAST LINE.—*Bonds.*—This company has applied to the Interstate Commerce Commission for authority to procure authentication and delivery of $3,724,536 of 4½ per cent general unified mortgage bonds, Series A, to be held in the treasury. The bonds are to reimburse the treasury for capital.

ALTON & SOUTHERN.—*Stock.*—This company has applied to the Interstate Commerce Commission for authority to issue and sell to the Aluminum Company of America at par of $100 a share, $1,000,000 of additional capital stock representing additions and betterments made and contemplated.

BALTIMORE & OHIO.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon a 17-mile line from Wooster to Millersburg, Ohio.

BALTIMORE & OHIO.—*Acquisition.*—Application has been filed with the Interstate Commerce Commission for authority to acquire control of the Curtis Bay by purchase of its entire stock from the Davison Chemical Company for $280,000. The Curtis Bay has about one mile of line at Baltimore and the B. & O., has pending an application to extend its Marley Neck branch to afford direct rail connection with it.

CHESAPEAKE & OHIO.—*Bonds.*—This company has applied to the Interstate Commerce Commission for authority to issue $30,000,000 of refunding and improvement mortgage 4½ per cent bonds, for the purpose of reimbursing its treasury to the amount of $15,193,000 for expenditures on additions and betterments and to the amount of $14,807,000 for expenditures in connection with the construction and acquisition of the Chesapeake & Hocking. It is expected to sell the bonds at not less than 92½. The Chesapeake & Hocking, which has recently completed its line from Gregg to Valley Crossing, Ohio, also applied for authority to issue $14,737,700 of capital stock to the C. & O. in payment for advances for the construction of the line and the C. & O. in a separate application asked authority to acquire the stock.

CHICAGO & NORTHWESTERN.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon a line 25 miles west and north of Antigo, Wis.

CHICAGO, ST. PAUL, MINNEAPOLIS & OMAHA.—*Equipment Trust Certificates.*—This company has applied to the Interstate Commerce Commission for authority to assume obligation and liability in respect of $690,000 of 4¾ per cent equipment trust certificates, to be offered for sale on competitive bids.

CHICAGO & WESTERN INDIANA.—*Acquisition.*—This company and the Belt Railway of Chicago have applied to the Interstate Commerce Commission for authority for the acquisition by the Western Indiana and the leasing and operation by the Belt of the terminal properties of the Burlington South Chicago Terminal at a rental of $85,000 a year.

FORT WORTH & DENVER SOUTH PLAINS.—*Construction authorized.*—The Interstate Commerce Commission has authorized this company to construct an extension of one and one-third miles at Lockney, Texas.

MISSOURI PACIFIC.—*Bonds*—The Interstate Commerce Commission has authorized this company to issue $30,000,000 of first and refunding mortgage bonds, series G, bearing interest at five percent. Five million dollar's worth of these bonds will be pledged and repledged from time to time as security for short term notes, while the remainder will be sold to Kuhn Loeb & Co., at 96½.

SOUTHERN PACIFIC.—*Acquisition*—The Interstate Commerce Commission has authorized this company to control, by lease, a branch of the Visalia Electric from Chowchilla, Cal., southwesterly 10 miles.

SOUTHERN PACIFIC—*Abandonment*—The Interstate Commerce Commission has authorized this company and the Atchison Topeka & Santa Fe to abandon a 2.5 mile branch from Treadwell Junction, Cal., to Porgue.

Average Price of Stocks and of Bonds

	Nov. 20	Last week	Last year
Average price of 20 representative railway stocks	129.88	127.31	120.93
Average price of 20 representative railway bonds	94.34	94.50	97.10

Dividends Declared

Atlantic Coast Line.—Common, semi-annually, 3½ per cent, Extra, 1½ per cent, both payable January 10 to holders of record December 12.

Canadian Pacific.—Common, 2½ per cent, quarterly, payable December 31 to holders of record November 30.

Chesapeake & Ohio.—Common, quarterly, $2.50, payable January 1 to holders of record December 8.

Cincinnati, New Orleans & Texas Pacific.—Common, semi-annually, $4.00, Common, extra, $3.00, both payable December 26 to holders of record December 7.

Delaware & Bound Brook.—2 per cent, quarterly, payable November 20 to holders of record November 14a.

Hocking Valley.—quarterly, $2.50, payable December 31 to holders of record December 8.

Kansas, Oklahoma & Gulf.—Preferred A, 6 per cent, payable December 15 to holders of record November 30.

Midland Valley.—Preferred, $1.25, payable December 1 to holders of record November 24a.

Pittsburgh, Youngstown & Ashtabula.—Preferred, 1¾ per cent, quarterly, payable December 1 to holders of record November 20.

THE FLOW OF LAVA FROM MOUNT ETNA'S RECENT ERUPTION overran the railway line connecting Catania and Messina and cut off rail communication between these two Sicilian cities. The operation of the line had to be suspended when the stream of lava swept away one of the road's bridges at Mascali, near the foot of Etna's eastern slope.

Officers

Executive and Legal

Frederic D. McCarthy, who has been promoted to assistant general counsel of the Northern Pacific with headquarters at St. Paul, Minn., has been in the service of that railway for more than eight years. He was born at St. Paul on December 18, 1890, and graduated from St. Thomas College in 1910, receiving

Frederic D. McCarthy

his law degree from the same school in 1913. Mr. McCarthy entered railway service on April 5, 1920, as general attorney of the Northern Pacific at St. Paul. His promotion to assistant general counsel became effective in October, 1928.

Earle B. Sloan, who has been elected president of the local board of directors and fiscal representative of the Southern Pacific of Mexico, with headquarters at Mexico City, D. F., has been in the service of that railroad for 18 years. He was born on December 9, 1884, at Kansas City, Mo., and after attending public schools in that city he graduated from the University of Missouri in June, 1905. In the same month he entered railway service as a topographer on the Southern Pacific of Mexico, later serving until June, 1906, as draftsman and transitman when he became a draftsman and then a transitman on the Chicago, Milwaukee & St. Paul. From April, 1907, to December, 1917, Mr. Sloan served successively as transitman and assistant engineer on the Southern Pacific of Mexico, as inspector, designer and transitman on the Copper River & Northwestern in Alaska and as draftsman, assistant engineer, roadmaster and assistant superintendent on the S. P. of Mexico. He then engaged in private business for three years and in April, 1921, he returned to the Southern Pacific as general foreman. After serving for a short time in that capacity and as assistant engineer, Mr. Sloan was elected chief engineer on August 15, 1922. Besides his

appointment as fiscal representative and president of the local board of directors of the Southern Pacific of Mexico, which became effective on August 1, he is fiscal representative of the Tijuana & Tecate, the Inter-California, the East Coast Oil Company, the Cia. Terrenos Y Agnas de le Baja California, the Southern Pacific Navigation Company and the Sunset Development Company, which are Southern Pacific subsidiary companies.

Operating

Edward C. Sparks, master of trains on the Eastern Kentucky division of the Louisville & Nashville at Ravenna, Ky., has been promoted to assistant superintendent of that division, with headquarters at the same point. **Kenneth W. Graham,** assistant master of trains on the Eastern Kentucky division, has been promoted to master of trains on that division, succeeding Mr. Sparks.

J. A. Gillies, assistant superintendent of the Western division of the Atchison, Topeka & Santa Fe, with headquarters at Dodge City, Kan., has been promoted to superintendent of the Slaton division of the Panhandle & Santa Fe, with headquarters at Slaton, Tex., succeeding **J. C. Barton,** who has been transferred to the Panhandle division of the Santa Fe, with headquarters at Wellington, Kan. Mr. Barton replaces **J. B. Brisco,** who has been transferred to the Plains division of the Santa Fe and the P. & S. F., with headquarters at Amarillo, Tex. **J. W. Walter,** trainmaster on the Pecos division of the Stanta Fe at Slaton, Tex., has been promoted to assistant superintendent of the Western division succeeding Mr. Gillies.

Chester H. Bristol, who has been appointed assistant to the general manager of the Western lines of the Atchison, Topeka & Santa Fe, with headquarters at Amarillo, Tex., following his request for relief from the duties of assistant general manager of the Northern district, with headquarters at La Junta, Colo., has been in railway service for more than 48 years. Forty years of that service have been with the Santa Fe. He was born at Wharton, Ohio, on April 2, 1886, and attended U. B. College, Fostoria, Ohio, and Frase Richard College, Mansfield, Ohio, entering railway service at the age of 14 years as a water boy on the Baltimore & Ohio at North Baltimore, Ohio. Later he worked as a section hand and in August 1880, he became night operator on the B. & O. at the same point. From that time until June, 1900, Mr. Bristol served successively as night operator at North Baltimore, as operator and clerk and dispatcher at Garrett, Ind., as dispatcher on the Missouri-Kansas-Texas at Fort Worth, Tex., as chief train dispatcher on the Gulf, Colorado & Santa Fe at Temple, Tex., and as dispatcher and chief dispatcher on the Santa Fe at Las Vegas, N. M., and Raton. He was then advanced to trainmaster at Raton, later being transferred to Las Vegas. In August, 1903, he was promoted to joint superintendent of the Santa Fe and the Colorado & Southern at Pueblo, Colo., where he remained until February, 1914, when he was promoted to general superintendent of the Northern district of the Santa Fe, with headquarters at La Junta. Mr. Bristol's title was changed to assistant general manager on June 20, 1920.

M. T. Skewes, chief train dispatcher on the River and Iowa and Minnesota divisions of the Chicago, Milwaukee, St. Paul & Pacific, has been promoted to assistant superintendent of the River division, with headquarters at Minneapolis, Minn. **G. H. Rowley** has been appointed trainmaster of the Dubuque division, with headquarters at Dubuque, Ia., succeeding **W. J. Hotchkiss,** who has been transferred to the Superior division, with headquarters at Green Bay, Wis. Mr. Hotchkiss replaces **A. C. Peterson,** who has been granted a leave of absence. **A. T. Berg,** trainmaster of the Milwaukee Terminals, with headquarters at Milwaukee, Wis., has been transferred to the Chicago and Milwaukee division, with headquarters at the same point, succeeding **R. A. Woodworth,** who has been transferred to the Racine and Southwestern division, with headquarters at Beloit, Wis. **C. E. Shaft** has been appointed trainmaster of the Milwaukee Terminals, replacing Mr. Berg. **J. A. Anderson,** shop superintendent on the Chicago, Milwaukee, St. Paul & Pacific at Milwaukee, Wis., has been promoted to assistant superintendent of motive power. **R. C. Hempstead,** master mechanic of the Dubuque division, with headquarters at Dubuque, Ia., has been promoted to shop superintendent at Milwaukee, replacing Mr. Anderson. The jurisdiction of **P. L. Mullen,** master mechanic of the Illinois division, with headquarters at Savanna, Ill., has been extended to include the Dubuque division.

A. L. Coey, who has been promoted to superintendent of the Utah division of the Oregon Short Line, with headquarters at Pocatello, Idaho, has been in the service of the Union Pacific System for more than 21 years. He was born at Chicago and received his education in the Chicago public schools, St. John's Military Academy, Delafield, Wis., and the University of Wisconsin. Mr. Coey entered railway service as a machinist helper on the Union Pacific at Evanston, Wyo., on September 6, 1899, and a month later was promoted to locomotive fireman, being advanced to engineman in February, 1903. From 1908 to 1913 he was mechanical superintendent of the American Casing Company, Chicago, then re-entering railway service as a brakeman on the Oregon Short Line. After engaging in other business from 1914 to 1916, Mr. Coey served during 1916 and 1917 as an engineman on the Union Pacific, being advanced to road foreman of engines in 1917. During the World war, from May, 1918, to August, 1919, he served with the American Expeditionary Forces in France. Following his return to the United States he resumed his former position of road foreman of engines at Evanston and in March, 1921, he was transferred to the

A. L. Coey

Nebraska division. From October, 1921, to March, 1924, he served successively as fuel supervisor of the Northern district and as trainmaster at Laramie, Wyo., and at Cheyenne, then being promoted to assistant superintendent of the Western division at Green River, Wyo. Mr. Coey's promotion to superintendent of the Utah division of the Oregon Short Line became effective on November 1.

Traffic

D. W. Johnston has been appointed chief of division bureau of the Canadian Pacific, with headquarters at Montreal, Que.

E. F. Schlottman, division passenger agent on the Baltimore & Ohio at Cleveland, Ohio, has been promoted to assistant general passenger agent at Chicago.

Elmer M. Gray, commercial agent of the Mississippi Central and the Louisiana & Arkansas at Louisville, Ky., has been promoted to general agent at Detroit, Mich., succeeding **R. T. Boteler,** resigned.

J. S. Hall, chief assistant general passenger agent of the New York Central, has been promoted to general passenger agent of the lines west of Buffalo, with headquarters as before at Cleveland, Ohio.

E. L. Whitney, assistant to the vice-president of the Chicago Junction and the Indiana Harbor Belt, with headquarters at Chicago, has been appointed general coal and ore agent of the New York Central lines west of Buf-

falo, N. Y., and also the Ohio Central lines with headquarters at Cleveland, Ohio.

Harry Parry, general passenger agent of the New York Central with headquarters at New York, has been appointed assistant passenger traffic manager, Line Buffalo and East, with the same headquarters. **A. E. Brainard,** assistant general passenger agent at New York, has been appointed general passenger agent, Line Buffalo and East, with the same headquarters. He will be succeeded by **Neil Mooney,** assistant general passenger agent at New York. **Irving M. Taylor,** assistant to general passenger agent, has been appointed general passenger agent, with headquarters at New York, in charge of Fares and Divisions, with jurisdiction over Lines East and West of Buffalo. **A. L. Miller,** division passenger agent at Albany, N. Y., has been appointed assistant general passenger agent, Line Buffalo and East, with headquarters at New York. **Ira G. Rasp,** division freight and passenger agent at Corning, N. Y., has been appointed division passenger agent, with headquarters at Albany. The territory of **L. W. Landman,** passenger traffic manager, with headquarters at Chicago, has been extended and will henceforth include the Line Buffalo and West.

Irving M. Taylor, assistant to general passenger agent on the New York Central, with headquarters at New York, has been appointed general passenger agent, with the same headquarters. Mr. Taylor was born on October 9, 1881, at Irvington, N. Y., and entered the

Irving M. Taylor

service of the New York Central on September 1, 1898, serving continuously with the company, with the exception of a few months, in various capacities. His recent appointment as general passengen agent became effective November 16.

Engineering

J. L. Campbell, acting chief engineer of the Northwestern Pacific, with headquarters at San Francisco, Cal., has been promoted to chief engineer.

R. S. Stewart, engineer of the New York division of the Pennsylvania, with headquarters at Jersey City, N. J., has been appointed engineer maintenance of way, with headquarters at Philadelphia, Pa.

F. M. Hawthorne, division engineer of the Philadelphia Terminal division of the Pennsylvania, with headquarters at West Philadelphia, Pa., has been promoted to engineer of maintenance of way of the Lake division, with headquarters at Cleveland, Ohio, succeeding **F. M. Graham,** who has been promoted to assistant engineer of standards, with headquarters at Altoona Works, Altoona, Pa.

Obituary

Armand Lalonde, former manager in Canada of the Boston & Maine, died on November 19, at Montreal, Que.

John A. Snyder, former general construction superintendent on the Western division of the New York Central, died on November 21 at the age of 69.

C. G. Henderson, master mechanic on the Southern, with headquarters at Charleston, S. C., died on November 17. Mr. Henderson was 47 years of age and had been employed by the Southern for about 30 years.

Alexander W. Thompson, car accountant of the Louisville & Nashville from October, 1921, to November, 1926, died at his home at Louisville, Ky., on October 6 after an illness of several years duration. At the time of his retirement in 1926 he had been in L. & N. service for 41 years.

William C. McKeown, former superintendent of the Wyoming division of the Union Pacific, died at Denver, Colo., on Nov. 13 at the age of 68 years. He was born at Joliet, Ill., and entered railway service on the Union Pacific at North Platte, Neb., in 1879. Mr. McKeown was advanced to trainmaster at Denver in 1905 and to assistant superintendent at the same point in 1907. Two years later he was further promoted to superintendent of the Wyoming division, with headquarters at Cheyenne, Wyo., where he remained until his retirement from active service in 1912.

Walter B. Pollock, former manager of the marine department of the New York Central, died on November 20 after an illness of several months. Mr. Pollock was born on December 8, 1856, at Milton, Mass., and entered railway service in 1868 as messenger in the president's office of the Old Colony Railroad. He later served in the superintendent's office on the Providence & Worcester, in the freight office of the Boston & Maine at Springfield, Mass., in the accounting department of the Pennsylvania, and as traveling auditor for the West Shore. He also served in the latter capacity on the New York Central & Hudson River and was appointed auditor of freight accounts in July, 1887. In November, 1898, he was appointed manager of the marine department for the same road and the New York Central Lines. During Federal control he acted as marine director for the New York Harbor, Eastern and Allegheny regions for the United States Railroad Administration, again serving as manager of the marine department for the New York Central at the end of that period, which position he held at the time of his retirement from railroad service in 1927.

Augustus E. Ruffer, assistant vice-president of the Erie, who died on November 14 after a short illness, was born on July 23, 1875, at Port Jervis, N. Y., and entered railway service on October 19, 1889, as messenger for the Erie and served for two years in the dispatcher's and superintendent's office. He was then appointed assistant clerk to the chief dispatcher and from 1894 until 1896, served as clerk in the superintendent's office. From 1896 until 1905, he served in the office of the superintendent of transportation in various capacities. In 1905, he left the service of the Erie to become special agent in the operating department of the Lehigh Valley, returning to the Erie in 1906 and

Augustus E. Ruffer

serving there in a similar capacity. He was appointed trainmaster of the Susquehanna division on May 1, 1911, and in May, 1912, was transferred to the New York division as assistant superintendent, with headquarters at Jersey City, N. J. He was promoted to superintendent of the Wyoming division at Scranton, Pa., in December, 1915, and was appointed superintendent of transportation in 1917. Mr. Ruffer served as transportation assistant of the Eastern region during Federal control, later serving as general superintendent of transportation, general superintendent, and transportation manager, which position he held at the time of his appointment to assistant vice-president in February, 1927.

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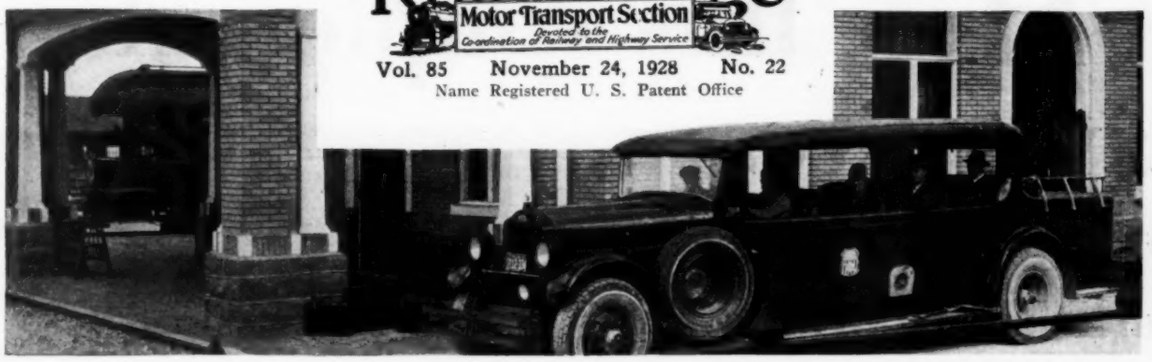
Name Registered U. S. Patent Office



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A report of deliberations at the recent Detroit meeting where discussions covered latest motor coach, truck and rail car developments as well as proposed national legislation for interstate highway regulation.

Reading's Coach Operation Progresses 1064

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The Railway Age is a member of the Associated Business Papers (A. B. P.) and of the Audit Bureau of Circulations (A. B. C.)

How this simple rule saves tires for the Yellowstone Park Transportation Company

. . . Easy, practical system insures tires on 372 sightseeing cars being kept at proper pressures constantly

THE 372 sightseeing cars operated by the Yellowstone Park Transportation Co. are *all equipped with pneumatic tires.*

Here, indeed, is a tire investment worth protecting. And here is the simple yet practical system whereby this company gets the greatest possible mileage from all its tires:

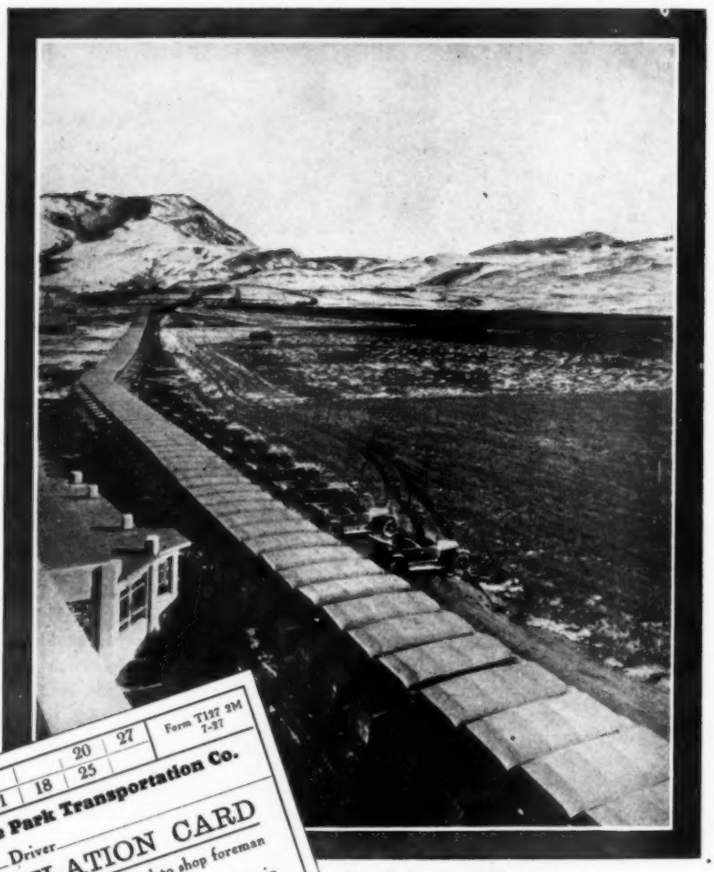
First, each driver is provided with a Schrader Tire Gauge and a Tire Inflation Card.

Second, drivers are required to keep their tires at correct pressures constantly—80 pounds in the front, 90 pounds in the rear.

Third, inspectors and shop foremen check all tire pressures weekly, and punch the drivers' cards in the space provided in the margin.

This system, as simple as it is practical, is the result of years of experience. And by using the Schrader Gauge, the company is *sure* its tire pressures are always right. This gauge is accurate and durable . . . built to stand up under the hardest usage. It is easy to read, and easy to use on any type of wheel.

Truck and bus fleet operators all over the country depend on Schrader Tire Gauges and Valve Parts to help them protect their tires. You, too, can get greater mileage by using Schrader products. Your regular dealer can supply you.



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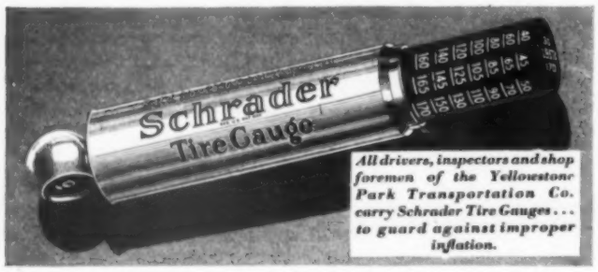
Part of the fleet of 372 sightseeing cars operated by the Yellowstone Park Transportation Co. These machines range in size from 7 passenger touring cars to 25 passenger buses—and all are equipped with pneumatic tires!

Form T197 PM 7-27
JUNE 4 11 18 25
JULY 20 27
Yellowstone Park Transportation Co.
Car No.____ Driver____
TIRE INFLATION CARD
All drivers will surrender this card to shop foreman or inspector upon demand.
Tire pressures are to be maintained at 80 pounds in the front and 90 pounds in rear tires.
F. E. KAMMERMEYER
AUG. 1 8 15 22 29
SEPT. 5 12

Each driver carries a Tire Inflation Card. Inspectors and shop foremen test tire pressures with Schrader Gauges on all cars regularly, every week, and punch this card after each testing.



All drivers, inspectors and shop foremen of the Yellowstone Park Transportation Co. carry Schrader Tire Gauges . . . to guard against improper inflation.

A. SCHRADER'S SON, Inc., BROOKLYN
CHICAGO TORONTO LONDON

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TIRE VALVES TIRE GAUGES

Railway Age
Motor Transport Section
Devoted to the Co-ordination of Railway and Highway Service

Vol. 85 November 24, 1928 No. 21

Important Motor Coach Operation Plans Announced

DURING the past month a number of railways have made important announcements of plans for the establishment of motor coach service in co-ordination with their railway passenger service. Such announcements have not been infrequent in the past, but the most recent ones have been unusual in their significance and in their indication of the increasing extent of the adoption by the steam railways of the motor coach as a useful instrument in performing a part of the transportation service which they are rendering their patrons. The Missouri Pacific, the St. Louis Southwestern and the Pennsylvania are the roads most strikingly involved in the recent news. The Missouri Pacific has organized a subsidiary, the Missouri Pacific Transportation Company, to operate motor coaches in its territory, and is reported to have applied for motor coach operating certificates paralleling most of its railway lines in the state of Arkansas. Similarly, the Cotton Belt has organized the St. Louis Southwestern Transportation Company and is said to have purchased several large independent motor coach lines in its Arkansas territory. The Pennsylvania, at last having secured the charter for its subsidiary, the Pennsylvania General Transit Company, has applied for authority to operate motor coach lines paralleling its main lines all the way across the state of Pennsylvania. Other roads, including the Baltimore & Ohio, the Southern, and the Richmond, Fredericksburg & Potomac, have likewise figured in recent news. These roads are also beginning or planning to establish their first motor coach lines. The action of the Missouri Pacific and the Cotton Belt is particularly worthy of note since the central southwest has been the only part of the country in which railways have refrained from engaging in motor coach operation to date.

Profit from Motor Coach Operation

MOST railways operating motor coaches, in reporting on the results obtained, stress the savings which have been effected through the replacement of trains, which are expensive to operate, by motor coaches which can provide equally good service much more cheaply. This is unfortunate since it tends to give prominence only to the money-*saving* characteristics of motor coaches and to ignore their equally important money-*making* characteristics. That motor coaches operated by railways can be made to earn a substantial net, wholly apart from the money saved through the withdrawal of train service, has been demonstrated many times. Although it is true that some railways, while saving money through the substitution of motor coaches for trains, are losing money on their motor coach operations in themselves, it is an important fact that the number of such railways is exceeded considerably by the number of roads whose motor coaches are more than paying their own way. More frequent service to attract more passengers, more intensive use of equipment to secure full value from it, the expansion of operations to spread overhead costs more thinly, carrying on maintenance activities on a preventive rather than a repair-after-failure basis, cultivation of special business to utilize equipment more fully, reductions in rates—these and other means have been adopted by successful railway operators of motor coaches to make them profitable. The experience of such operators indicates that no railway should be satisfied with its motor coach operation if it is merely saving money through the substitution of motor coaches for trains. Instead, each railway should make every effort to place its highway operations on a basis profitable in themselves.

Interchangeable Couplers for Tractors and Trailers

AT the Detroit meeting of the Motor Transport Division, the question again was raised as to the reason why manufacturers of semi-trailers do not provide a standard coupling device which would enable semi-trailers of any type to be handled by any tractor. Under existing conditions, a tractor which can couple to one kind of semi-trailer cannot couple to any of the others, since each manufacturer has his own individual coupling device. The position of the manufacturers of semi-trailers can readily be appreciated. Each has spent his time and money developing what he considers the best coupling device, and each one naturally wishes to continue the use of the device which he considers best and upon which he holds the patents. On the other hand, the viewpoint of the operators of tractors and semi-trailers can also be understood. Their conviction is that the fullest use of tractors and trailers in providing efficient and economical freight transportation service cannot be accomplished without a universally adopted coupling device. It has been suggested by one of the manufacturers that a committee, including representatives of operators of tractors and trailers and representatives of the various manufacturers, be formed to study the various coupling devices now on the market and to select the one most suitable for general adoption. This is a practical suggestion which the Motor Transport Division could well afford to consider. In view of the already extended use of tractors and trailers in freight service of the railways, it seems likely that their adoption will continue and will expand much farther. In the interest of the manufacturers, as well as of the railways, it would seem to be essential that nothing such as a lack of a universal coupling device should be permitted to impede this development. The suggestion of a joint committee of operators and manufacturers to consider and act upon this subject is thought to open the way to the solution of the problem.

Pick-Up and Delivery Service by Pacific Electric

THE announcement of the Pacific Electric, a subsidiary of the Southern Pacific, that it has organized the Pacific Electric Motor Transport Company to operate motor trucks in providing freight transportation service coordinated with the rail service, including pick-up and delivery, is decidedly interesting. Briefly, the plan of the Pacific Electric Motor Transport Company is to perform a complete freight service from the shipper's store door to the consignee's store door, under a through rate to cover the entire operation. The motor transport company's trucks will pick up shipments at the shipper's door and haul them to the Pacific Electric rail stations where they will be transferred to railway cars and hauled to the station of destination by the railway under a contractual arrangement with the motor transport company. At the station of destination, the load will again be transferred to the motor transport company's trucks for delivery to the consignee's place of business. Whether or not the railways themselves should furnish pick-up and delivery service of this sort, as well as transportation over their rails, is a question which has been long discussed. In England, pick-up and delivery service by the railway is an accepted feature of railway transportation. In the United States, however, this plan has not been generally accepted. This makes the action of the Pacific Electric all the more interesting.

Meeting Highway Competition in New Zealand

FRANK recognition of the passenger traffic problems which railways have encountered as a result of the rapid growth of highway competition for this class of business is indicated by the New Zealand Minister of Railways who, in his latest annual report outlines the situation with reference to that colony's government lines. After discussing the 19 per cent. decline which the lines have experienced in passenger revenues since 1921 the report says, "The position as it now exists is due wholly to the development of the road motor, and must be accepted as a permanent feature of the transportation problem. . . . . If the increase in the number of motor cars per head of population continues, there is every reason to anticipate further losses in railway passenger traffic." In another section of the report, referring to the railway's own highway services there is outlined the steps which have been taken to cope with this situation. After enumerating vehicle purchases for additions to the service during the year, the statement continues, "These vehicles were purchased by the Department in continuance of the policy, instituted in the previous year of effecting consolidation of the road and rail services in suitable areas, and the purchase of these fleets from private owners was successfully carried out by mutual agreement. The rapid extension of the motor coach is one of the most interesting and significant features of the development of the Dominion's transport system in recent years. Experience clearly demonstrates that the motor coach has come to stay." Thus along with the recent successful fight of the English railways for authority to provide highway service here is further evidence of agreement among railway officers in other countries that the most effective way to meet highway competition is for railways to enter the field themselves.

The Detroit Meeting of the Motor Transport Division

THE officers and members of the Motor Transport Division are to be congratulated on the highly successful meeting which they held in Detroit, Mich., last month. In attendance, practical value of reports and active interest of the delegates in the subjects which came up for discussion, the Detroit meeting surpassed all others of the division. There were plenty of encouraging indications that the division has nearly completed its organization period and is entering the stage of practical useful work in behalf of the railways.

It may be interesting to review at this time, when the Motor Transport Division has just held its first annual meeting, its organization and the conditions which led to it. The Motor Transport Division exists today, first, because of the development of motor vehicle transportation of freight and passengers and, second, because of the effect which the widespread use of these new transportation tools, largely in competition with the railways, had upon the railway business. The belief existed a number of years ago that the railways would be acting against their interests in standing idly by while motor vehicle transportation developed. This belief became a fairly general conviction about two and one-half years ago, and resulted in the organization of the Railroad Motor Transport Conference by representatives of some fifty railways.

Its purposes met with the approval of the American Railway Association, which gave point to this approval by organizing the Motor Transport Division of the association to replace the Railroad Motor Transport Conference. By that action, the American Railway Association officially recognized the substantial part which motor transportation was to play in the general scheme of transportation and opened the way to the fullest possible co-ordination of railway service with highway operations.

Prior to the Detroit meeting of the division it had to be more concerned with organization matters than with the general subjects covered in the purposes of its organization. Those purposes, briefly, were to study the relation of motor transportation to railway transportation, to determine how the two can best be co-ordinated in the interests of the public as well as of the operators, and to put their findings in the form of recommendations to the railways. The proper organization of the division was a problem in view of the varied nature of its work and, even more important, because of the necessity of securing representation on the committees from all parts of the country, since conditions in no two localities are exactly alike. Before the Detroit meeting was held, however, the organization of the division had been virtually completed and the committees had begun their work.

How earnestly the division has gone about its tasks is indicated to some extent in the report of the proceedings, which is published in this issue of the *Motor Transport Section*. The practical value of the work of the division is already defining itself. It is expected to be even more clearly defined as the division hits its stride at successive meetings. The next one is to be held in February at St. Louis, Mo., where two large railways are beginning motor coach operation and where terminal transfers of freight by tractors and trailers have long been the rule. A still better meeting is expected at St. Louis, as the committees become more familiar with their work and as the division, as a whole, continues the splendid progress which it already has made.

Plan Large Scale Coach Operation

Missouri Pacific and Cotton Belt propose widespread operations in Arkansas—Other roads also begin highway service

A NUMBER of the largest railways in the United States have recently established their first motor coach lines to supplement or replace their railroad passenger service, or have announced plans for widespread motor coach operation in their territories. These projects are located in various parts of the country, but the most striking of them, on the basis of announcement of plans for the future already made, are in the southwest, where motor coach operation by the steam railways has been at a minimum and the competition of independent operators has been keen. Among the roads involved in the recent developments are the Missouri Pacific, the St. Louis Southwestern, the Pennsylvania, the Baltimore & Ohio, the Richmond, Fredericksburg & Potomac and the Southern.

Of the latter roads, the Pennsylvania, which recently secured a charter for its motor coach and truck-operating subsidiary, the Pennsylvania General Transit Company, has applied to the Public Utilities Commission of Pennsylvania for a certificate to permit motor coach operation on highways paralleling its main line for its entire length across the state of Pennsylvania. It proposes two routes between Philadelphia and Pittsburgh, one via Harrisburg and the other via York. A public hearing has already been held on these applications. It is understood that applications to permit similarly large-scale service in other states served by the Pennsylvania will ultimately be presented to the various state commissions. The Pennsylvania has for some time been operating a number of motor coaches to supplement steam train service on certain of its lines, by means of contracts for the highway service with independent operators. It is now proposing to carry on motor coach operation through its own subsidiary company.

B. & O. Wins Decision

Through the favorable action of the United States Supreme Court, the way is now clear for the Baltimore & Ohio to establish two motor coach routes in West Virginia. The B. & O. has been prevented heretofore from carryying out its plans to supplement its rail service in that state with highway operations, on account of litigation involving the granting of certificates in the state. Certificates covering the routes proposed by the railway were originally granted by the highway commission to independent operators, but the Supreme Court of West Virginia over-ruled this action of the commission, stating that when a railway is among the applicants for certificates, prior right to motor coach operating certificates covering routes in its territory is held by the railway. Following this decision, counsel for the independent operators applied to the United States Supreme Court for a writ of error, but the United States Supreme Court announced on October 29 that the application was dismissed for "lack of a substantial federal question."

The Baltimore & Ohio is authorized to operate motor coaches between Clarksburg, W. Va., and Grafton, a distance of 22 miles, and between Weston, W. Va., and Buckhannon, a distance of 25 miles. Both of these routes parallel its railway lines. The B. & O. is now arranging to begin motor coach service on these routes at an early date. Aside from the train connection motor coach service operated by the Baltimore & Ohio at New York through a contract with the Fifth Avenue Coach Company, these will be the first motor coach routes to be operated by this railway.

Indications that the Southern, already an operator of motor coaches for the transportation of its employees at Knoxville, Tenn., is to begin the operation of coaches for passenger transportation, came out at the time of the recent stockholders' meeting of the railway. At this meeting, it was stated by Fairfax Harrison, president of the Southern, that the railway plans the establishment of a motor coach route paralleling one of its railway lines in North Carolina. No announcement has been made as to the route to be covered or as to the date when service will begin.

The Richmond, Fredericksburg & Potomac has just secured certificate permitting the operation of its first motor coach route and has placed an initial order for equipment to establish the service. It is understood to have plans for the installation of several similar routes.

Although little official information as to the motor coach operating plans of the St. Louis Southwestern has been forthcoming as yet, it has announced the organization of a subsidiary company, the Southwestern Transportation Company, by means of which its motor coach operations will be carried on. Daniel Upthegrove, president of the Cotton Belt, is president also of the Southwestern Transportation Company. D. W. Russell, formerly manager of the Little Rock, Ark., branch of the White Company, has been appointed vice-president and general manager of the Southwestern Transportation Company. C. Messick, treasurer and assistant secretary of the Cotton Belt, has been appointed also secretary and treasurer of the subsidiary company. Operating headquarters of the transportation company will be maintained at Little Rock, Ark., where the vice-president and general manager will have his office. An initial order for eight six-cylinder White motor coaches has already been placed.

Newspaper reports have stated that the railway has purchased the property, operating certificates and licenses of the Krummen Motor Bus Company, Inc., and the Red Ball Bus Line, and has secured the transfer of the permit of the Smith-Arkansas Traveler Company, covering the route between Camden, Ark., and Pine Bluff. All of these companies are located in Arkansas. The railway has not confirmed these reports however.

The Missouri Pacific announced its plans for extensive motor coach operations on November 6. Its first applications for coach operating certificates have been made in the state of Arkansas. The Missouri Pacific has organized a subsidiary, the Missouri Pacific Transportation Company, which has applied to the Arkansas Railroad Commission for permission to operate a large number of motor coach lines in the state. The Arkansas applications were filed by P. J. Neff, recently appointed assistant to the president of the Missouri Pacific, who has charge of motor coach and truck matters for the railway.

While no coach lines are being operated at present, according to Mr. Neff, it is planned to inaugurate service when the application is approved by the railroad commission. It is planned for the present only to improve the service on the highways paralleling the Mis-

souri Pacific lines, particularly in the way of supplementing branch line service and providing better connections for through trains along main lines where the through trains do not make all of the stops.

"The cost of maintaining local passenger service is becoming more and more of a burden to the railroads", Mr. Neff said, "and for that reason the railroads are turning to the highways, to which they have contributed in the matter of cost, as the means of preserving the short haul traffic and, by co-ordination with long-haul traffic, still functioning in a manner to best serve the interests of the public. The railroads are better equipped financially than independent operators to provide adequate and dependable service on the highways because of their ability to expand in line with the requirements of the communities. They can also perform certain phases of highway service which independent operators would not undertake because of thin revenues. The railroads also have a tremendous investment in these highways through taxes paid for their construction. For these reasons it is expected that the commission will look favorably upon the granting of all of their applications."

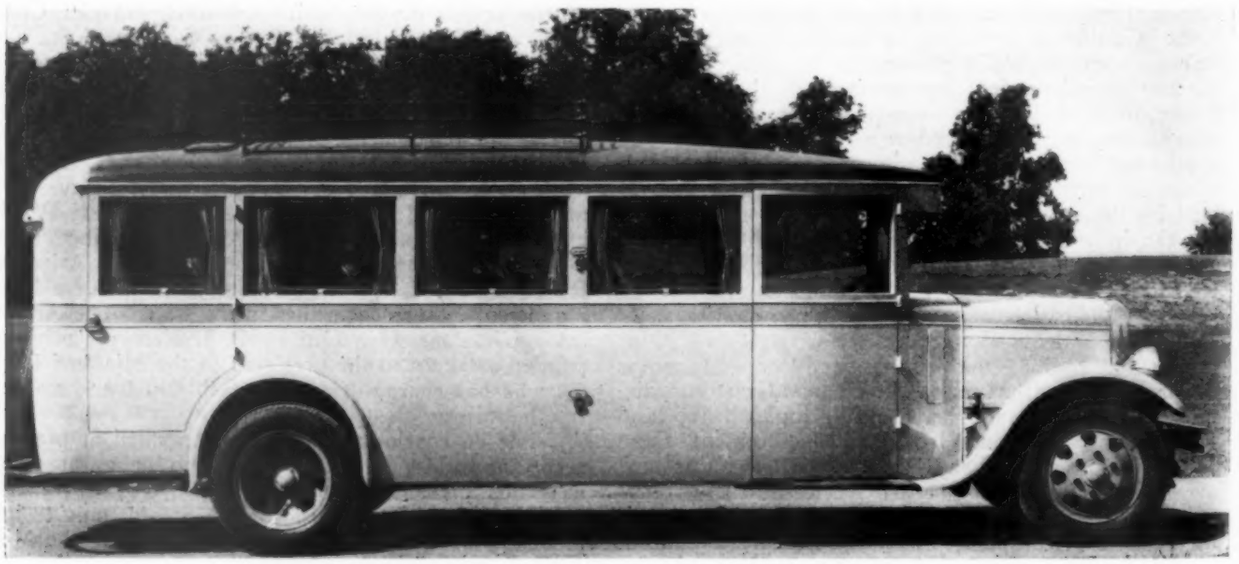
The Missouri Pacific Transportation Company, according to press reports, has already filed applications with the Arkansas Railroad Commission for certificates covering 22 motor coach routes. A hearing on these applications will be held in Little Rock, Ark., on December 12. A total of 1,360 miles of highways will be covered by the Missouri Pacific motor coaches, if the certificates for which it has applied are granted.

The routes proposed by the Missouri Pacific in its applications in Arkansas are as follows: From the Missouri state line near Moark, Ark., to Walnut Ridge, via Corning and Knobel, over highways 67, 1 and 34 a distance of approximately 40 miles, from Walnut Ridge to Newport, over highways 63 and 67, a distance of approximately 40 miles; from Newport to Kensett, over highway 67, approximately 35 miles; from Kensett to Little Rock, over highways 67 and 70, approximately 50 miles; from Little Rock to Hot Springs, over highway 70, approximately 65 miles; from Benton to Texarkana, via Arkadelphia and Gurdon, over highways 67 and 51, approximately 130 miles; from Hope to Nashville, over highway 4, approximately 30 miles; from Little Rock to Fort Smith, via Conway, over highways 65 and 64, approximately 175 miles; from Fort Smith to Paris, over highway 22, approximately 50 miles; from Newport to Batesville, over highway 14, approximately 25 miles; from Hoxie to Helena, over highways 63, 1 and 20, via Jonesboro, Barton, Harrisburg and Marked Tree approximately 150 miles; from Bald Knob to West Memphis, over highways 16 and 70, approximately 95 miles; from Marianna to West Memphis, over highways 3 and 70, approximately 50 miles; from Helena to Brinkley, via Clarendon, over highways 20, 17, 3 and 70, approximately 60 miles; from Little Rock to Pine Bluff over highway 65, approximately 50 miles; from Pine Bluff to McGehee, over highway 65, approximately 70 miles; from McGehee to Arkansas City, over highways 65 and 4, approximately 15 miles; (from McGehee to Arkansas-Louisiana state line, over highway 165, approximately 60 miles;) (from McGehee to Arkansas-Louisiana state line, over highway 65, approximately 60 miles;) from Eudora to Arkansas-Louisiana state line, over highway 59, approximately 10 miles; from Lake Village to Crossett, over highway 2, approximately 54 miles; from Halley to Warren, via Monticello, over highways 35 and 4, approximately 50 miles.

These proposed motor coach routes parallel most of the Missouri Pacific railway lines in Arkansas.

Yellow Coach Designed for Parlor or City Service

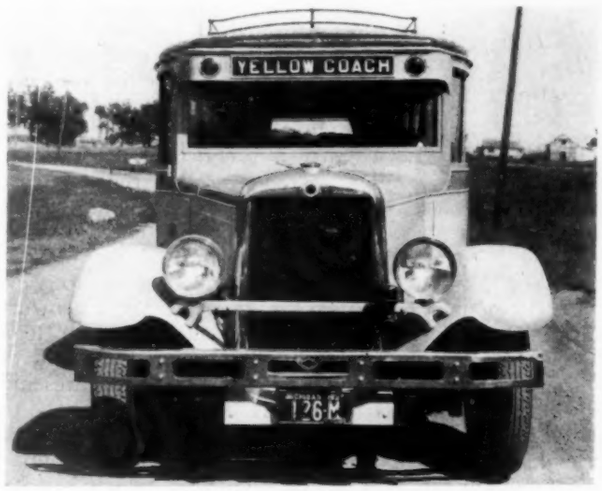
THE General Motors Truck Company, Pontiac, Mich., recently announced its Type W, 8-cylinder Yellow coach to meet the demand for a smaller unit for city service. It is powered with a Cadillac eight-cylinder Vee-type engine, modified to meet motor coach requirements. The coach is equipped with four-wheel service brakes of an improved design which combines hydraulic control with duplex or mechanical brakes of the type used for a number of years on the Yellow Model Z coaches. The hydraulic operating cylinders are mounted between the cam shaft levers of the duplex or mechanical brakes. The design provides simple adjustments for wear and no equalization adjustment is necessary. The brake drums are of gun iron, 16⅛ in. in diameter, ground to fit. The combined serv-



Yellow Type W, Parlor Coach—Seats for 17 Passengers

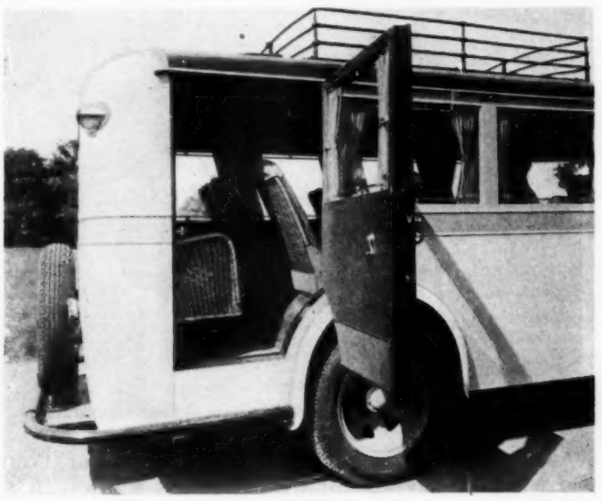
ice and emergency brake area amounts to 836 sq. in. The frame is of rigid construction, the side members being of ¼-in. pressed steel with a maximum depth of 8 in. and the cross members,—of which there are seven, three being of tubular construction,—have flanged ends of sufficient width to brace the frame rails. These flanged ends are brazed and riveted to both the upper and lower flanges of the side member.

A feature in the design of the Type W coach is the front spring suspension which has been developed with the object of obtaining better riding qualities and easy steering with a minimum of maintenance. This has been accomplished by outboard mounting of the front



Front View of the Yellow Type W Coach

springs, which are shackled at the front to a heavy channel cross member outside the chassis frame, instead of directly under it. All spring mountings are adjustable and of a new patented design which eliminates the usual two-piece shackle, and simplifies adjustment and maintenance. Other features which have been incorporated in the design are: An oversized underslung worm-drive rear axle; a four-speed transmission, a rugged multiple disc type clutch with special lubricating features; a radiator having a capacity of nine gallons which is specially shrouded so as to increase the air volume drawn through the core by the fan, and a new design of A. C. fuel pump. The heating



Safety Door Open Showing the Wicker Seats

system of the coach is of the electric blower type which eliminates all pipes in the body and insures adequate and uniform heat distribution.

The Type W coach, designed for city service, has an overall length of body of 23 ft. 8 in., and an overall width of 90 in., with 76½ in. of head room. Twenty-one passengers can be seated facing forward but with longitudinal seats placed over the wheel housing, seating accommodations for 23 passengers can be provided. By installing parlor-car seats and window curtains, the city service body can be made into a 90-in. wide, semi-de-luxe coach with full headroom. The parlor coach body design has an overall length of 18 ft., 1½ in. and an overall width of 84 in. The head room is 68 in. The parlor car seats 17 passengers but by adding hinged aisle seats, 21 passengers can be accommodated.

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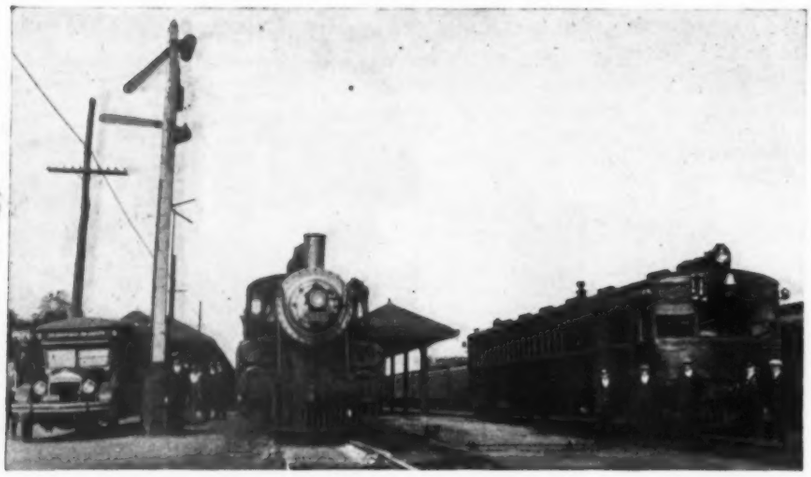
White Coach Used by the Southern for Employee Transportation at Knoxville, Tenn.

Important Problems Considered

Discussions cover latest motor developments as well as the for interstate high-



AT the first annual meeting of the Motor Transport Division of the American Railway Association at Detroit on October 24-26, there were 131 railroad representatives present, representing 250 railroads. Additional attendance of those outside the railroad field totaled 37—or a grand total of 168. The opening remarks of Chairman Russell and the program of the meeting were reported in the *Motor Transport Section* of October 27, page 853. The first of the sessions dealt with the motor truck.

Motor Truck Section

Following the opening address by chairman A. P. Russell on Wednesday morning, October 24, the meeting was turned over to G. C. Woodruff, chairman of the Motor Truck Section. In his opening remarks chairman Russell had expressed gratification at the interest that many railways, which previously had had no connection with the work of the Motor Transport Division, were now manifesting in its problems. Mr. Woodruff stated that general interest was now satisfactory, but that little progress could be made unless this general interest could be effectively localized, and accordingly the sectional committee has asked every railroad in every region to have members on the regional committees. The chairman next referred to the questionnaire on motor truck operation which had been distributed, and explained that returns from these would present a good picture of motor truck conditions throughout the country.

Regional Committees Have Important Function

Referring to the desired type of equipment, Mr. Woodruff did not consider it a problem of the Motor Truck Section to decide what type of truck, tractor, trailer or other vehicle should be operated, but rather considered it more advisable to keep members informed on these matters and let local conditions care for themselves through regional committees and individual railroads. Mr. Woodruff then introduced in turn the chairmen of all the regional committees, asking them to report briefly on what had been done in their respective regions.

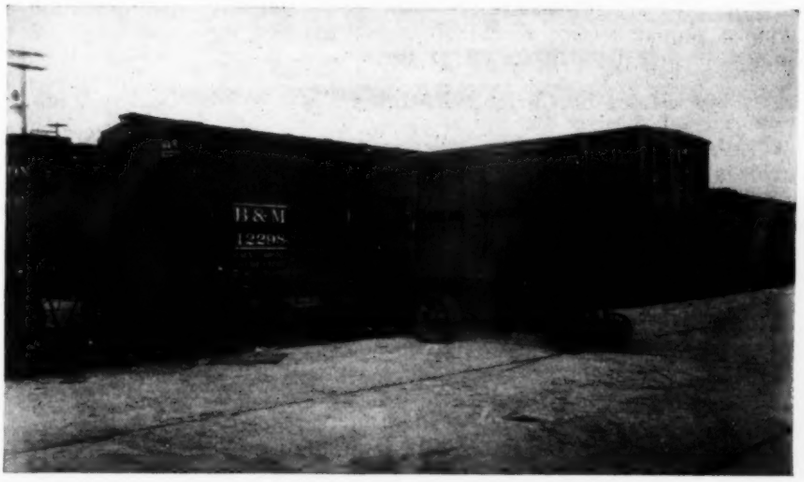
C. J. Chenworth, engineering assistant to vice-president, Atlantic Coast Line, chairman of Regional Committee No. 1, was the first to report. He stated that practically all of the railways in region No. 1 had accepted membership on the regional committee and added that highway competition in the district had increased tremendously, although there was not sufficient information on the subject to make a detailed report at the time.

Following brief questioning by Chairman Woodruff as to the number of roads not yet represented on the regional committee and the steps being taken to gain the co-operation of these roads, P. J. Neff, assistant to the president of the Missouri Pacific, was called upon to report for Regional Committee No. 2. Like Mr. Chenworth, Mr. Neff reported that practically all railways in Region No. 2 were co-operating with the committee and that there were now 19 members in this region, representing virtually all the major systems. He expressed hope that the few lines which have not yet designated members will still join. Mr. Neff then referred to a questionnaire, resembling the general questionnaire, which had been sent out by him to various points on the Missouri Pacific. The Missouri Pacific questionnaire was designed to assemble information on aviation, coach and truck operations. With reference to aviation, replies were to give information as to the development in the vicinity of each station on the railroad—whether or not there are landing fields, the approximate size of each and other general information.

Motor coach and truck information sought referred to the number of lines operated, description of the highways, patronage enjoyed by coach and truck lines, copies of their tariffs, and detailed figures over a period of five years as to the relative quantity of l.c.l. freight received and forwarded at each station, relative number of passenger tickets sold at these stations and the amount of milk and cream shipped by baggage or express. With this information summarized, Mr. Neff stated, it will represent a compilation of information from approximately 2000 stations and will furnish data for determining what effect highway competition has had on freight and passenger traffic during the five years under survey. J. A. Doggrell, superintendent of transportation of the St. Louis-San Francisco, stated for this road, that there was no objection to remaining in Region No. 1 but that it would like to be represented in Region No. 2 as well, whereupon Chairman Woodruff stated that several roads were in this position and that the most logical solution was to have the railroad represented in every region in which it operates, since there may be different conditions on different sections of the same system. B. O. Johnson, assistant to the president of the Northern Pacific, stated that Regional Committee No. 3 would have a report at the next meeting, since it had no opportunity to prepare a report for the Detroit session. There was no report for Regional Committee No. 4.

by the Motor Transport Division

coach, truck and rail motor car
proposed national legislation
way regulation



J. P. O'Brien, general manager of the Oregon-Washington, chairman of Regional Committee No. 5, reported that no railways in this region were operating motor trucks today and that he was unable to learn whether or not there was any intention on the part of these lines to enter the truck field at an early date. He stated that competition in Region No. 5, particularly on the north coast, was very strong, since in this district there are a number of large companies operating motor coaches and these latter are doing practically 75 per cent of the local business within a radius of 100 miles of Portland, Ore., Seattle, Spokane and Tacoma, Wash. He stated that railways of the section had responded promptly to the questionnaire, only two lines failing to reply.

He stated further that, aside from the two roads which declined to reply to the questionnaire, he found considerable interest among railways which are not operating trucks either directly or indirectly but which agreed that it was worth while to proceed with the investigation regardless of the fact that no railway in the territory now operates trucks. Following his remarks, Mr. O'Brien was questioned at some length in regard to his reference to the 75 per cent of traffic local to Portland, Seattle, Spokane and Tacoma, which had been lost to the highways. He stated that most of this was freight traffic, lost to the trucks for distances of about 100 miles, although some trucks were competing with the lines of his road over a distance of about 250 miles. Truck rates, he said, were less than railway rates. This loss was attributed by the speaker mainly to store-door delivery, since the railway was giving desirable service on freight over 200 miles out of Portland.

During the course of this question, F. Hartenstien, assistant to the general manager of the Lehigh Valley, discussed briefly the experience of his road with freight trucking. He stated that the Lehigh Valley had gone into the trucking business on a small scale some time ago but had dropped it because it duplicated the work of pick-up trains in the same territory. Replying to a question by Mr. O'Brien, Mr. Hartenstien said that the Lehigh Valley had not made store-door delivery, whereupon the questioner assigned that as a probable reason why the desired business was not obtained by the railroad trucks. He stated there was no advantage to the shipper in the truck movement if the freight still had to be delivered to the freight station and that if the shipper does not receive the store-door service it is immaterial to him whether the freight is handled by truck or train.

Store-Door Delivery, Pro and Con

This reference to store-door delivery was followed by considerable discussion on the subject. In the course of such discussion, details of the store-door service given by the Boston & Maine Transportation Company along the lines of the Boston & Maine was brought out by Chairman Woodruff's questioning of F. J. Carey, superintendent of motor truck operations. In this connection comment was also made by E. Wanamaker, electrical engineer, Chicago, Rock Island & Pacific, regarding the experience of his road with truck operation from the downtown district of Chicago, where tractors and trailers were substituted for cars in the handling of l.c.l. freight in and out of four stations. This is not a store-door service, but the introduction of trucks reduced the cost of operation about 25 per cent while business increased about 60 per cent. Railway patrons that formerly used their own trucks have found it cheaper with this system to have downtown truckmen deliver their freight to one of these inland stations. The Rock Island, operates the service itself, but at the present time is experimenting with operation of the equipment by local transfer companies. H. Z. Maxwell, assistant general solicitor of the Pennsylvania then entered the discussion to say that most of the trucking service on that road was a service in lieu of local pick-up freight trains, peddler service and ferry car service. He said, however, that the Pennsylvania was much interested in the establishment of a truck service to recapture lost traffic in certain territories. In such situations a trucking service controlled by the railroad to extend not only from station to station but also including a pick-up and delivery service might solve the problem.

Added Responsibility Cited

Chairman Woodruff pointed out that the most serious question of all in connection with store-door delivery had not been touched. This he held to be the voluntary assumption on the part of the railways of the additional responsibility for freight while it is being handled between the railhead and the place of business of the shipper or consignee.

Another speaker took the view that just as soon as railway organizations are built up to handle all transportation business they will likely be given all this business because of the efficiency of their machinery, rather

than because they have any right to expect it. Comparing motor coach service with trucking service, he contended that while discussion is carried on regarding store-door freight service the railways are actually giving a similar service with their motor coaches, inasmuch as they let patrons off at their own homes.

Loss of Carload Business

G. W. Lupton, assistant to vice-president of the Atchison, Topeka & Santa Fe, at this point suggested that perhaps there is a certain amount of business which the railroads are just as well off without and that it might be well to consider seriously the losses which might result from a policy of accepting all traffic with store-door delivery. This speaker believed that railways should accept all business which they possibly can, but suggested that there is an economy line which can not be crossed profitably in any action to meet highway competition. This line of demarcation should be recognized. Mr. Neff commented on the remarks of the previous speaker calling attention to the fact that it is not only l.c.l. business which the railways are losing to the motor truck but quoted statistics showing important losses in carload business. He continued to say that more than the question of store-door delivery was involved. He cited instances on several railways where material reductions of expenses have been effected by the use of motor trucks. He referred particularly to the discontinuance of peddler trains and stated that some roads have been able to take off those trains almost entirely. Referring to the cost of freight train operation, the speakers foresaw that as highways are improved and motor truck operations become more systematized, much money will undoubtedly be saved by distributing l.c.l. freight to local stations by truck, regardless of whether or not store-door service is offered. Turning to motor coach competition in Missouri Pacific territory, Mr. Neff stated that there are now more than 1000 motor coaches operated on highways directly competitive to the railway service of that road. The speaker stated that this was practically equivalent to one motor coach for every passenger coach which is operated by the railway and estimated that if these motor coaches are making expenses they must be receiving $18,000,000 in annual passenger revenue which formerly went to the railroad. Mr. Maxwell here injected the thought that since the railways have a considerable investment in their facilities if they continue to lose traffic with resultant reductions in gross earnings, it makes equipment much less profitable on the basis of the investment. He thought it to be a problem of the Motor Transport Division to state ways and means to bring back this lost business and suggested that, if necessary, railways must enter the truck business.

Improved Service Also a Factor

Following this, Chairman Woodruff called upon M. F. Steinberger, special engineer of the Baltimore & Ohio, chairman of Regional Committee No. 6, to report for that region. Mr. Steinberger stated that 45 roads in his region were invited to accept membership on the regional committee. Of this number 24 accepted the invitation and from these the committee was formed. The chairman next outlined the replies which were received to the general questionnaire from roads in his territory. Questioned by Mr. Lupton, Mr. Steinberger stated that he had made studies to determine economies which may be effected in terminals by the use of motor trucks and as a result was convinced that economies were possible and thus the Baltimore & Ohio put on the trucks. Mr. Lupton hoped that replies to the questionnaire would furnish information on this point, inasmuch as he thought several railways were spending money unnecessarily in terminals, perhaps by reason of their failure to adopt trucking service in lieu of present freight car service. The speaker further thought that the gathering should compile some statistical information on specific terminals which would indicate just what economies may be expected if trucking service is installed. Mr. Steinberger suggested that there are several reasons beside economy which might make it advisable to establish terminal truck service. He cited expedited service and added that some of the Baltimore & Ohio truck services were installed for this reason even though no money was saved. Mr. Lupton agreed that this was a legitimate reason and added that economy and expedited service could not be divorced.

James L. Hill, supervising agent of the Long Island, was next called upon by Chairman Woodruff to report for Regional Committee No. 7. Mr. Hill stated that Region 7 had 47 member roads from 30 of which he had received replies. Of that number 15 had expressed their willingness to name a representative to the committee. The Regional Committee, he stated has not yet had a meeting but it is hoped that it will get together before the next meeting of the Motor Transport Division.

Trucking in the Northwest

H. C. James, assistant to the general superintendent of the Northern Pacific, suggested that the situation in the Northwest may be somewhat different, inasmuch as there is considerable trucking in that territory by merchants themselves. As an example, he cited the case of freight and produce houses which operate trucks all over the territory from their distributing points. After this report on Region 7 and its discussion and brief remarks by C. S. Lake, assistant to the president of the Chesapeake & Ohio, Chairman Woodruff and Division Chairman Russell spoke briefly before the adjournment of the session of the Motor Truck Section.

Motor Coach Section

With the afternoon session the meeting of the Motor Coach Section opened, with chairman T. B. Wilson vice-president and manager of the Southern Pacific Motor Transport Company, presiding. In his opening remarks, Chairman Wilson outlined the objective of the Motor Coach Section and expressed hope that before the next meeting all regional committees would be functioning fully with complete representation of all lines in every region. The first subject to be considered was the "Report of the Motor Coach Section Relative to Endorsement of the Uniform Motor Coach Specifications", fostered by the Society of Automotive Engineers and the National Automobile Chamber of Commerce. The chairman stated that R. J. Littlefield, manager of motor coach service of the Boston & Maine Transportation Company and chairman of Regional Committee No. 7, had this matter in hand for the present meeting. Region 7 had done considerable investigating of the subject, while the other regions plans to submit their findings in the matter at the next meeting. Mr. Littlefield stated at the outset that, during the past several years, numerous difficulties have presented themselves in the way of public utility regulation of motor coach transportation. These difficulties, he

stated, to be chiefly concerned with conflicting specifications of motor coaches established by regulation. The speaker referred to the meeting held in New York on October 5 at which representatives of seven or eight railways in the Seventh Region discussed uniform specifications. These railway representatives studied the specifications suggested at this meeting and those who made the report approved the code as a whole as it was presented. Two railways, however, questioned whether the 76-in. headroom was necessary on street car type coaches; whereupon it was suggested that the matter be referred to automotive engineers.

Uniform Specifications for Coaches

Mr. Littlefield said that the committee which worked up the specifications had done a very constructive piece of work in what he considered a big field. The plan, he said, was to place the code before the National Association of Public Utility Commissioners and try to obtain approval, disapproval or recommendations from public service bodies throughout the country. Experience with conflicting regulation in the East, he added, showed that here is a field for a constructive piece of work if these bodies can be brought together in applying for uniform regulation of motor coaches. Commenting on this point, Chairman Wilson stated that his company on one line could cross three states with one specification but when it crossed the line of another where its terminal was located, a distance of about three miles into that state it was necessary to make the body 6 in. narrower and make a number of other changes. He referred to the necessity for varying lights in various states and suggested that if this lighting code could be simplified it would contribute much to easier operation. Concluding, however, the chairman suggested that while it is quite desirable to place these requirements on a more uniform basis, it might be well to question whether or not the time has yet arrived when a definite pronouncement on specifications can be made.

Direct or Subsidiary Operation?

These remarks by Chairman Wilson concluded the discussion on the uniform specification code and the meeting turned to a consideration of the next subject which was "Should motor coach service inaugurated by the railroads or supplemented to rail service be operated by a subsidiary company with its own officers and employees, or as a department of the railway?" The chairman stated that he had undertaken to gather some data on this question and thus would read the important points resulting from his investigation. He stated the question was so fundamental that it must be met before an operation is started. A canvass of the railways, according to the chairman, has indicated that most of them have a subsidiary company, although there are one or two which are operating motor service as a railway department. He stated, however, that he felt that most of his associates on this committee from the study they had made believed that motor service should be operated by a subsidiary organization. Even though the subsidiary be only an operating company, he believed that highway service should be under the direction of a separate corporation.

Referring to revenues and expenses of highway operation, the chairman considered that the motor coach subsidiary should maintain its own separate accounting in a most direct and inexpensive manner, while at the same time complying with designated classifications. The Southern Pacific he said has its subsidiary follow a definite classification which is patterned after the classification of railway accounts. It was pointed out that in view of the many independent motor coach operators a railway subsidiary is the advantageous form for providing the service because of the greater flexibility in meeting competitive situations. Another point in favor of the subsidiary was the fact that its officers have an undivided interest in making the mo-

Members of Division Who Visited Plant of General Motors Truck Corporation with Officers of Company

tor transport operations a financial success and their incentive to this is probably greater than if the highway operations were merely a side line in railway operation.

Attitude of Regulatory Bodies

Following the close of this report, Mr. Neff of the Missouri Pacific asked if any information were at hand regarding the attitude of public service commissions in authorizing more than one certificate of convenience and necessity to any one given route, and continued to say that the motor coach is the logical successor to the rail motor car when traffic has decreased to the point where rail motor cars are no longer profitable. Mr. Neff wondered whether commissioners have supported applications of railways to substitute motor coaches for rail motor cars when the proposed railway motor coach route is already covered by a coach of an independent highway operator. In reply a California case was cited in which the commission did grant a certificate to a railway for a highway operation in lieu of a discontinued train service, while at the same time the highway route was served by an independent operator. In this same connection Mr. Steinberger of the Baltimore & Ohio referred to a report at the previous meeting of the Motor Transport Division wherein the attitude of state commissions throughout the country generally was indicated to be one which was unfavorable to the use of a highway route by more than one motor coach operator. Mr. Maxwell of the Pennsylvania concluded that the general rule was that commissions are disposed to grant exclusive privileges to one operator over each route and that few routes where no independent is now operating are still open to the railways. A. C. Tosh, superintendent of the Reading Transportation Company, stated that in one instance the Reading Transportation Company had been permitted to operate over a route already covered, but that a restriction was imposed preventing the carrying of local passengers between the two points where the overhead traffic was moved. F. S. Hobbs of the New England Transportation Company explained that in the state of Connecticut a certificate of convenience and necessity, owned by anyone, is protected by the state and, once issued, the only way a new operator can get on the route is by handling only overhead traffic or by purchasing the business of the certificate owner.

Co-operating With Independents

Referring to the suggestion that the co-operation of independents be sought for the haul of local traffic, it was stated that on the West Coast motor coach lines have consolidated into big cross-country operations. Thus, if a railway contracted with one of these operators to haul traffic from a branch line into a junction this junction might be across the country at Chicago or some other distant point; thus it was believed that the railway would not see the business again. This speaker concluded, therefore that this contractual scheme practically amounts to giving away a large portion of the business. He admitted, however, exceptions in the case of some individual motor coach operation which is not tied up with a big long-distance line.

Outlook for Truck Line Mergers

Replying to a question by Mr. Lupton, Chairman Wilson stated that some states do not require independents to carry liability insurance. Turning for a moment to truck transportation, Mr. Wilson stated it to be his view that development of this type of highway service will follow the development of the motor coach service. He stated that in his territory five years ago many motor coach lines were in operation, whereas today there are just a few big systems, the result of mergers, and in some cases they have sold stock to the public. The chairman continued to say that freight trucking would probably develop along the same line although right now it is carried on by a large number of relatively small concerns. There followed considerable discussion upon the advisability of substituting motor coach service for an unprofitable branch line in order to protect traffic which might originate on the branch line and be profitable for a long haul on the railway from a junction point.

Can Railway Motor Coach Lines Pay?

L. M. Allen, vice-president and passenger traffic manager on the Chicago, Rock Island & Pacific, asked if experiences with motor coach operation justified the opinion that a profit might be expected from such service. In reply Chairman Wilson said that the Southern Pacific had considered the entire situation not only in substituting motor coach service for train service but in supplementing train service with motor coach lines. He stated that a supplementary service was put on with a view to making money on local business, while at the same time it acts as a feeder for through trains. He said that most of the supplementary service is bringing suitable returns, while much of the service substituted for trains is losing money. This latter service, however, reduces even heavier losses of the rail service for which it is substituted.

Referring to the question of contracting with an independent operator, H. F. Fritch, passenger traffic manager of the Boston & Maine and president of the Boston & Maine Transportation Company, stated that he did not doubt that in some instances conditions would warrant contracts with independents, but he was, nevertheless, familiar with many cases where the independents had first entered the field and operated at a loss but later saw a more fertile field which latter might well be one in which the railway is operating. Thus the independent, having gained the favor of the public, may expand where the railway does not want him and thus become a serious competitor.

Should Commission Agents Be Appointed?

The next question considered was that of commission agents. F. S. Hobbs, general manager of the New England Transportation Company, read a paper on "The necessity for commission agents in handling motor transport service". Mr. Hobbs saw the employment of these functionaries to be necessary. He so regarded them because of competitive conditions and their stimulation of traffic and because of the desire to place tickets in the hands of passengers to eliminate delays incident to cash fares; and to minimize the handling of cash by employees. Major agencies of the New England Transportation Company, this speaker said, had been selected because they are directly on the route, whereas the railway station might be remotely located. Usually these are responsible business men whose stores are open during the entire period of the motor coach schedules. While the payment to these agents is usually regarded as a commission, it is in reality but the cost which the transportation company would have to assume in any event if it employed its own ticket sellers to do the work. Mr. Hobbs next referred to the factors which should determine the selection of agents, the location of agencies and the education and bonding of and payment to the agents.

One speaker believed that the railway agent is not the most satisfactory person to sell motor coach tickets because he is already loaded up with railway work and thus does not have time to get around to places as do the agents of the independent lines. These latter, he said, have waitresses, hotel clerks and other such persons selling motor coach tickets for them. Following this discussion, Chairman Wilson called upon E. S. Moore, general superintendent of transportation of the Norfolk & Western, chairman of Regional Committee No. 1, to report for that region. Mr. Moore reported that out of 39 railroads in this region half had indicated their desire to co-operate and expressed hope that more progress would be reported in the near future.

Growing Interest of Traffic Men

He was followed by W. M. Fenwick, general passenger agent of the Missouri-Kansas-Texas, chairman of Regional Committee No. 2. Mr. Fenwick reported that there were 19 member lines in this region but that several important roads were not as yet working with the committee. These latter he hoped to induce to join the organization before the next meeting. Although the committee had not functioned as yet, the chairman stated that interest was strong, especially among the traffic men, and that more attention was being given the subject than heretofore. E. W. Lollis, General Superintendent, Chicago, Milwaukee, St. Paul & Pacific, chairman of Regional Committee No. 3, next spoke for that region. Mr. Lollis reported that Regional Committee No. 3 had been partially organized, although six roads in the district had not appointed representatives. He read the names of the members of his committee and expressed gratification that a great many of its representatives were also representatives of the rail motor car section. Referring to his own line he said that the company has two coaches in service, one operating between Fond du Lac, Wis., and Iron Ridge, Wis., and the other between Richland Center, Wis., and Lone Rock, Wis. The speaker quoted figures on this operation and stated that at the present time the Milwaukee is also planning to place motor coaches in service on other routes.

Since R. H. Clarkson of the Santa Fe Transportation Company, chairman of Regional Committee No. 4, and Mr. Crozier of Regional Committee No. 5 were absent, R. H. Allison, assistant to general manager of the Cleveland, Cincinnati, Chicago & St. Louis, reported for Regional Committee No. 6. He stated that of the 39 roads questioned in this region 21 had made favorable replies while eight lines were not interested and the remaining 10 had not yet replied. Thus, he said, it was reasonable to expect that the committee would consist of 28 or 30 railways out of the 39. He said that the committee had not yet functioned but was organized to conduct business in the near future.

Seventh Region Questionnaire

The report of Regional Committee No. 7 was read by Chairman R. J. Littlefield. Mr. Littlefield reported that his committee had an interesting meeting in New York on October 5 at which there were members from every railway in the territory which is operating motor coaches with the exception of one. The standard specification code referred to in the foregoing, Mr. Littlefield said was discussed at this New York meeting. Continuing he said that he had distributed a questionnaire, replies to which indicated that there are 723 motor coaches now being operated by the railways, railway subsidiaries or electric railways owned or controlled by steam roads in the Seventh Region. Of these coaches 216 were parlor type while 345 were the city type, 123 were semi-parlor type and 39 were observation coaches. Eight companies in the region are operating these motor coaches. Of these 738 coaches, 591 or 82 per cent are being operated by the New York, New Haven & Hartford or its subsidiaries, and 13 per cent by the Boston & Maine, leaving 5 per cent divided among the other six companies. In 1927 the motor coach mileage of these companies was 15,203,000 whereas in the first eight months of 1928 it was 14,098,000. The motor coaches have replaced 901,303 steam train miles and 157,092 rail motor car miles yearly. Mr. Littlefield said that some of the larger systems were asked to outline the situation in their territory with reference to the competition of independents. One large railway, he stated, reported that 97 motor coach lines were competing with its train service, while another reported that 51 independents were in competition with the railway and its subsidiaries on the highways. For the Boston & Maine he reported that there was only one motor coach line that is competing with the Boston & Maine railway service or highway service.

Chairman Wilson spoke here to say that it was planned at the next meeting to have all the regional committees functioning so that a composite report of the situation as it exists in the various regions will be available. He was gratified to see that the percentage of acceptances of membership in regional committees among the eligible railways was satisfactory.

The Future of the Sleeper Coach

The recent development of the sleeper motor coach was discussed. It was thought that possibly a vehicle of this type might have to be limited to about 15 passengers with higher charge per passenger. R. L. Fairbairn, manager of passenger service bureau of the Canadian National, referred to the sleeper motor coach now in operation in Great Britain between Liverpool and London. This, Chairman Wilson said, was along the line of development which he had previously discussed, i. e. sleeping accommodations for 12 or 15 persons.

What Is Co-ordination?

The discussion next turned to a definition of proper co-ordination between rail and highway service. Mr. Buchanan of the Pennsylvania asked the opinion of the members as to what they regarded specifically as co-ordination of coach and rail service. Chairman Wilson regarded proper co-ordination to be present when the two services were worked hand in hand and not in competition with each other. Another co-ordination feature he said was the interchangeability of rail and motor tickets. On the Southern Pacific, he added, railway tickets are honored on the motor coach, although motor coach tickets are not honored on the trains. This latter is because the motor coach tickets are cheaper and in effect would produce a reduction in railway passenger rates if they were accepted for a rail journey. In his concluding remarks to the Motor Coach Section, Chairman Wilson referred to Mr. Woodruff's statement at the meeting of the Motor Truck Section that many railroads were responsible for the growth of motor coach and truck competition because of the fact that they discontinued train service and thus failed to give a reasonable service in the territory. The result of this policy was to bring a new independent operator each time a railway passenger train was discontinued over the route.

The chairman referred to the development of air transportation and stated that some of these long-distance independent motor coach lines are now leading the way in this new field. Thus, he concluded, that if this development is not watched the railways will soon be in the same position with respect to main line passenger business as they have found themselves with respect to branch line business in the face of motor coach competition.

Law Committee Reports

Following these remarks of Chairman Wilson the meeting adjourned until the following day, October 25, when discussions were resumed at the morning session under the chairmanship of R. N. VanDoren (vice-president, C. & N. W.) of the Law Committee who was presented by Chairman Russell after a few introductory remarks. Mr. VanDoren stated it to be his belief that there was general agreement among railway men that there should be some form of regulation of the commercial motor vehicle. As the matter now stands the problem was, he stated, to decide upon the question of detail, and the scope of the regulatory bill which shall be proposed as a basis for action. The speaker discussed the Parker Bill and outlined the events leading to its final formulation and presentation for the consideration of the House of Representatives. Referring to the machinery by which the proposed law was to be enforced, Mr. VanDoren thought this was the stumbling block which caused the disagreement on the bill. This machinery called for the state commissions acting as agents of the federal government to receive applications for motor coach operation and if such applications were for interstate operation they were to be filed with the commission of each state through which the coach company proposed to operate. The public utilities regulatory bodies of these states would then assemble as a joint board to hold hearings on the applications. Any of the parties, if dissatisfied with the rulings of these state bodies, might appeal to the Interstate Commerce Commision, but the matter was left largely in the hands of state commissions, while the Interstate Commerce Commission was granted a supervisory jurisdiction over their activities.

Mr. VanDoren continued to outline the difficulties which the Parker Bill encountered in its journey through congressional committees and sub-committees and stated that since its failure of passage the interests involved have been at work in an attempt to clarify the situation and remove some of the objections which were raised at former hearings. The revised bill now contains the changes which were proposed to the original Parker bill and these largely have to do with the machinery by which the act is to be enforced.

Mr. VanDoren summarized these changes under three main heads. The new bill, he said, requires that the application be filed with the Interstate Commerce Commission instead of with the various state commissions. The national body upon receipt of such application notifies the interested state commissions and calls upon these to conduct hearings for the Interstate Commerce Commission. The I.C.C., however, is represented on this board or joint board which conducts the hearings in the interests of the states and has the deciding vote in the case of a tie.

The "Grandfather" Clause

The second change which Mr. VanDoren noted was a requirement that in granting a certificate consideration be given to existing available transportation agencies and services. Mr. Van Doran in concluding referred to the difficulty of agreement over the so-called "grandfather" clause of the proposed bill which provides that proof of continued operation over a given route for a period of one year prior to the legislative session at which the proposed act is passed shall be considered prima facie evidence of the public convenience and necessity of such an operation.

The discussion following Mr. VanDoren's remarks turned to brief questioning by several members on the effect which the so-called "grandfather" clause would have on particular operations which they described. Following this, questioning turned to the proposed clause requiring the commission to give due consideration to existing means of transportation and service and Mr. VanDoren answered several inquiries of members on this point. Mr. VanDoren in reply to a question quoted a clause which provides that nothing in the act should be construed to authorize a motor carrier to do an intrastate business. The clause continues to say that it is not intended to interfere with the exclusive exercise by each state of the power to regulate motor carriers engaged in intrastate business on its highways. Such carriers will continue to be subject to the laws of the states in which they operate. The granting of the interstate certificates would, therefore, neither authorize nor prohibit the operator from doing intrastate business. Mr. VanDoren was asked if the proposed bill made any provision with regard to rates. He said that the bill does not as yet provide for the establishing and fixing, by the commission, of a minimum rate and thus it would be up to the operator to establish such rates as would enable him to carry on his business profitably. Such a situation, he thought, was better than the rate cutting competition which the railways are now experiencing.

Replying to another question. Mr. VanDoren stated that the bill under discussion related only to motor coach service and that no bill has yet been offered with a view to the regulation of the motor truck. He further stated that he thought the truck situation had better be treated by itself rather than under the present proposal. To another questioner Mr. VanDoren replied that the transfer of a certificate from one highway operator to another is to be passed upon by the state commissions according to the bill.

Rail Motor Car Section

The meeting was then turned over to the rail motor car section under the chairmanship of R. L. Fairbairn, who called upon L. D. Burns, assistant to general manager of the Seaboard Air Line, to report for Regional Committee No. 1. The report stated that 26 railways operating in Region No. 1 had representation in the Rail Motor Car Section. These 26 lines comprise all the larger roads in the Southeast and a decided majority of the smaller lines. Of the roads represented on the committee, 12 now operate rail motor cars, while others have manifested considerable interest in the subject. A total of 48 motor cars are now being operated in the region over 7,387 miles of line or an average of 163 miles per car per day. Of these, 38 cars are operated with trailers. Mr. Burns next referred specifically to the Seaboard's operation of rail motor cars and quoted cost figures and savings over steam train operation. He stated it to be his opinion that rail motor cars have now been in operation long enough to demonstrate that they are satisfactory as to making schedules and are as comfortable to the traveling public in addition to being more economical to operate than steam trains.

The speaker further expressed it as his opinion that there has been no reduction in the cost of train operation in recent years which is comparable to that made by the substitution of motor cars for trains. The failure of rail cars to increase travel the report attributed to the increased number of motor coaches in operation and the improved condition of highways. The private automobile, it further said, rather than motor coach lines is affecting the business of local trains. In conclusion the report suggested that consideration be given to more comfortable seats in rail cars, even though some seating capacity be sacrificed for this comfort.

Mr. Burns was first questioned on the per mile cost of operating rail cars on his road and inquiries then turned to the crews required and state laws regarding minimum crews.

In response to another questioner, Mr. Burns expressed the opinion that his road had possibly held local passenger business by rail car operation. One speaker suggested that a solution of the rail car problem might be found in lighter trailers, whereupon Mr. Burns conceded this might be true in some cases; nevertheless he thought that comfort might be sacrificed if a lighter car were constructed. Referring again to savings which rail cars afford over train operation, Mr. Burns thought one of the greatest factors in this economy to be the lower cost of classified repairs. This cost he stated in closing was cut more than half.

E. Wanamaker Seeks Rail Car Cost Data

E. Wanamaker, electrical engineer on the Chicago, Rock Island & Pacific, then read the report of Regional Committee No. 2. He stated that practically all railways in the region had designated members to the subcommittee and furnished data on their rail motor car operations. Also these roads have expressed a desire to co-operate in furnishing cost data. In this connection Mr. Wanamaker recommended that a standard cost form be drawn up. This recommendation was endorsed by several members as the discussion turned to questions of proper cost items and varying practices with respect to these. Depreciation and proper rates for it was discussed at length after which E. W. Lollis, general superintendent of the Chicago, Milwaukee, St. Paul & Pacific, was called upon and reported for Regional Committee No. 3.

With the opening of the afternoon session, G. L. Whipple of the Union Pacific read the report of Regional Committee No. 4. The committee, he said, had been organized with a representative for each of the railways except three, one of which was uninterested while the other two have little mileage in the region. These latter, however, have agreed to co-operate in every way. Mr. Whipple concluded by stating that statistics would be gathered by his committee as soon as a procedure for this investigation is developed.

H. H. Hummel, assistant to the general superintendent of motive power of the Southern Pacific, speaking for Regional Committee No. 5, stated that no report was to be made because the committee had been unable to function to any great extent in the short time since his appointment as chairman on October 1.

Use of Rail Cars in the Northeast

In the absence of the chairman of Regional Committee No. 6, J. K. McNeillie, superintendent on the Delaware & Hudson, was called upon to report for Regional Committee No. 7. He stated that the committee had organized and held a meeting in New York on September 28. At this gathering it was decided to distribute a questionnaire to obtain data on operations in Region 7. Of the 45 roads which received this questionnaire, 34 replied, while 14 reported that no rail motor cars were owned or operated. Among the 20 roads reporting operations of this character, 184 power units and 84 trailers are owned. The chairman stated, however, that replies to the questionnaire must be classified before the data can be presented in its most useful manner.

Following a brief discussion on Mr. McNeillie's report, Chairman Fairbaun presented the report of C. E. Brooks, chief of motive power, Canadian National-Grand Trunk, was introduced to read his paper entitled "Is the Mechanical Transmission Type of Self-Propelled Passenger Car Obsolete? If so, Why?" Outlining the advantages and disadvantages of mechanical transmission in his report, Mr. Brooks concluded that the latter surpassed the former and expressed his opinion that mechanical transmission is practically obsolete in modern railway practice.

In the discussion which followed Mr. Brooks' paper, several of the members spoke briefly on their experiences with different types of rail cars and the services in which these different types were found satisfactory. Following this E. Wanamaker of the Rock Island read a paper entitled "Terminal Handling of Motor Cars and Motor Trains".

Before beginning his prepared talk, however, Mr. Wanamaker referred to the question of dead man control in motor cars which had been brought up by the speaker in the discussion of Mr. Brooks' paper. He stated that his company intended to install the dead man control on all cars.

Are Terminal Charges Against Rail Cars Too High?

Turning to his paper, Mr. Wanamaker opened with the statement that the big problem in the operation of motor cars and motor trains by steam railways is not the operation of this equipment on the line, but rather the successful handling in the terminal. He suggested that in cases where a station or terminal is given extensive alterations or where new terminals are constructed, attention should be given in the design of facilities which will foster proper handling of motor cars and motor trains. He referred to the charges assessed by the railway or terminal company for handling motor cars of another line in their terminals. The speaker predicted that the time was not far distant when the bulk of passenger business will be handled by the use of motor cars or motor trains, except possibly long haul business.

Continuing to substantiate this contention, the speaker said that he felt that air transport was coming more rapidly than did highway transport and added that the readjustment may produce a situation where an increasing amount of passenger traffic will be handled by these motor cars or motor trains, probably in connection with airway and highway transportation. Following along this line it seemed to the speaker that the time is near when the best transportation terminals in the large cities will be those terminals which have been altered or designed to care for the co-ordinated traffic of airway, highway and railway. To-day, he said, motor cars and motor trains are performing an economical service as compared with steam train operation; also he thought that it would be found necessary to consider the use of the motor car for switching and mixed train service. Summarizing this thought, Mr. Wanamaker stated that he expected a rapid increase in the motorization of all light rail traffic to the extent

that eventually perhaps half of the railway power units will be motorized, the other half being large and powerful steam or electric locomotives for the handling of heavy tonnage trains.

Mr. Wanamaker discussed the proper design and weight of the motor car, together with a discussion of adequate heating and lighting arrangements. Turning again to the terminal handling of this equipment, he stated the problem to be comparatively simple where the terminal is owned by the railway operator of motor cars, but added that it is considerably more complicated when charges must be made for terminal costs. The practice in the latter case the speaker understood to be the assessment of charges for the motor car similar to those assessed for the handling of a locomotive and for trailer cars, charges equal to those collected for the handling of a passenger cars behind a steam locomotive. He thought, however, that some attention should be given this matter in order that a suitable rate might be developed. Motor cars, he said, do not make use of coal chutes, water cranes and cinder pits and these factors should be borne in mind in determining the charge for the handling of this equipment, since railways are entitled to a fair termial charge from foreign lines for the handling of their equipment.

The speaker continued to discuss in detail what he regarded as the proper handling of the motor car in the terminal and the proper supervision of this handling. In closing he called attention to the fact that the successful operation of motor cars depends largely upon the degree of efficiency with which the mechanical department is able to maintain them. In other words, the mechanical department has the brunt of the problem to bear in any successful motor car operation, and should be given all the assistance possible by the other departments, in order that the rail motor equipment may effect all savings which are possible from its use.

Rail Car or Abandonment of Service?

J. K. McNeillie next read a paper on "A Reliable Formula on which to Base a Decision as to Whether or Not the Purchase of Self-propelled Equipment to Replace a Steam Train is Justified". Mr. McNeillie stated at the ouset that in its present state of development the rail motor car is well adapted to the transport of light passenger and related traffic, such as baggage, mail and express, but so far as he knew it had not been used to an appreciable extent for freight service. The most suitable field for rail motor cars, he continued, is for branch line runs where they may be operated either as passenger or mixed trains or for short line hauls where normally straight passenger trains are run. Under present day conditions, he suggested that before consideration be given to the purchase of rail motor cars, it should first be developed whether or not the proper course is to attempt to discontinue passenger service entirely or merely to bring it to an irreducible minimum.

There followed considerable discussion and brief questioning among the members upon the formula proposed by Mr. McNeillie, whereupon the author stated that he did not wish to be understood as attempting to establish arbitrary measures, as each railway should have its own methods for arriving at the formula.

Chairman Fairbairn at the re-opening of the session on the morning of October 26, asked that members communicate to him as soon as possible their opinions regarding the formula put forth by Mr. McNeillie in order that he might prepare a further report for the next meeting with the idea of suggesting a standard formula.

The next paper prepared by George McCormick, general superintendent of motive power of the Southern Pacific Lines, on "The Reliability of Gas-Electric Rail Cars and Form of Statement for Reporting Operating Costs" was read, in the absence of the author, by H. H. Hummel.

In the discussion which followed, B. J. Beasley, superintendent of motive power of the St. Louis-Southwestern, stated that his road had been operating gas-electric motor cars for 18 years and now has eight of them in operation. He continued to say that the road now has a force of mechanics trained for the repair of these cars and no mechanic not so trained has been allowed to work on them.

With this the discussion turned to the proper method of handling repairs on the rail motor car and the advisability of divorcing such repairs from the regular equipment repairs.

Following such discussion a paper on rail motor car operation was read by E. W. Lollis of the Chicago, Milwaukee, St. Paul & Pacific. This speaker stated at the outset that the paper was an attempt to cover subjects which were regarded as most important in the operation of rail motor cars and referred to the proper size and other features of the motor car which would prove most efficient. He stated that experience has proved that in average branch line conditions the 65 ft. motor coach equipped with a 275 h.p. motor will satisfactorily handle a 30-ton trailer in every day service, and will in an emergency handle a second 30-ton trailer. For highly efficient operation, however, the 75 ft. motor car with baggage, mail and passenger compartments, was regarded as most satisfactory. Such a car would operate as a single unit and would also have sufficient power to handle a 30-ton trailer in an emergency.

Rail Motors for Freight Service and Switching

The speaker continued to discuss several other features in the proper size and design of the rail motor car, the type of seats for best riding qualities, possibility of operating motor cars in switching service in terminals where electrification is being agitated, factors determining when it is economical to substitute motor cars for steam service and what can be done to increase passenger business and mail revenue by operating rail motor cars, giving consideration to public convenience.

Following the presentation of this paper, Mr. Lollis was questioned as regards the experience of the Milwaukee with motor car operation. During the course of this Mr. Burns suggested that in the discussion much had been said about the fact that there was much more seating capacity than necessary. In his opinion the seats should be rearranged so as to be made more comfortable even thought more capacity be lost. He thought that this would increase passenger business on local trains and asked some of the members who had experience with such changed seating arrangements to comment on the subject.

Increasing Average Rail Car Mileage

The next paper, read by G. L. Whipple of the Union Pacific, was entitled "Distribution of Rail Motor Cars So as to Provide Maximum Mileage, and Design of Rail Motor Car that Will Tend to Increase Revenue".

Referring to his first point, the distribution of rail motor cars, Mr. Whipple stated that this is a problem of the individual line and thus cannot be discussed in

such a way that general principles can be developed on the subject except to keep before the mind of the builder the necessity for reliability in performance of his product and durability in its intense operation. He stated that builders should not take a step backward by offering a product that must be confined to short mileage runs in these days when long runs are found to be entirely practicable.

February Meeting in St. Louis

Following this discussion Division Chairman Russell again took the floor to dispose of the question of the February meeting. It was decided in this connection to hold the meeting at some point in the West and a committee consisting of Messrs. Wilson, Lupton, Neff, VanDoren and Whipple was selected to arrange details and select a place for the meeting. It was later decided to hold this February meeting at St. Louis.

Joint Conference

Chairman Russell opened the joint conference with representatives of the automotive industry with a brief address of welcome and outlined in a few words the idea behind the Motor Transport Division's policy of holding these joint conferences. He referred to proposed national legislation for the regulation of motor coach transportation and outlined the manner in which the railways had set up machinery to co-operate with other interested organizations in this matter.

Mr. VanDoren then took the floor to urge all present to a free discussion of mutual problems. He stated that the attitude of the steam railways with reference to regulation of highway traffic was not one of selfishness, for he reminded those present that conferences should have convinced them that there are only one or two matters in the whole subject on which the railways have insisted. In other features, he stated that they have been willing to go along with other interested parties. It is the desire of the railways to work out a constructive bill which will prove successful and to this end they have given of their time and ability. He thought, therefore, that it would be well for some of the others who had given this matter consideration to express their opinions on it.

A.A.A. Bus Division's Attitude on Regulation

Chairman Russell called upon S. A. Markel of the Bus Division of the American Automobile Association. Mr. Markel expressed gratitude for the co-operation which the Bus Division had received from all railways in their conferences looking toward constructive national legislation for the regulation of interstate highway operation. He continued to say that motor coach transportation is ever changing and thus he did not believe that anyone present would hazard a definite prophecy as to its future or its proper position in the transportation scheme of the nation. He warned that a bill which may have been sound in the past year may require certain changes and thus was unwilling to say whether his organization entertained any different views with respect to the proposed Parker Bill than it did at the last conference. In its opinion, he added, there were several amendments necessary to the Parker Bill and until further pending conference with his associates, the National Automobile Chamber of Commerce, and with other interests, including steam and electric railways, he was not in a position to state the attitude of the Bus Division. The speaker did say, however, that his associates were of the opinion that legislation is essential and that they would do everything possible to arrive at accord with the steam railway representatives on some reasonable legislative proposition.

Chairman Russell next called upon C. D. Cass, representing the American Electric Railway Association, who also discussed the outlook for national legislation on highway regulation. This speaker thought that federal legislation must be had in order to stabilize the industry, which he regarded as the only transportation agency operating in the United States today that is still unregulated. Further citing instances of price cutting by independent lines which produced destructive competition for the railways, Mr. Cass, in concluding, expressed hope that the committees will be able to agree in the pending Washington meeting and thus appear before Congress in December with a united front.

F. C. Horner, of the General Motors Corporation, representing the Society of Automotive Engineers, expressed the thought that much could be accomplished for the common good of motor transport if all agencies interested could get together on mutual problems.

Following Mr. Horner, C. F. Clarkson of the Society of Automotive Engineers spoke briefly regarding specifications of motor vehicles and also on "The Need for Co-operative Work by Railroad and Automotive Organizations on Highway Transport Problems."

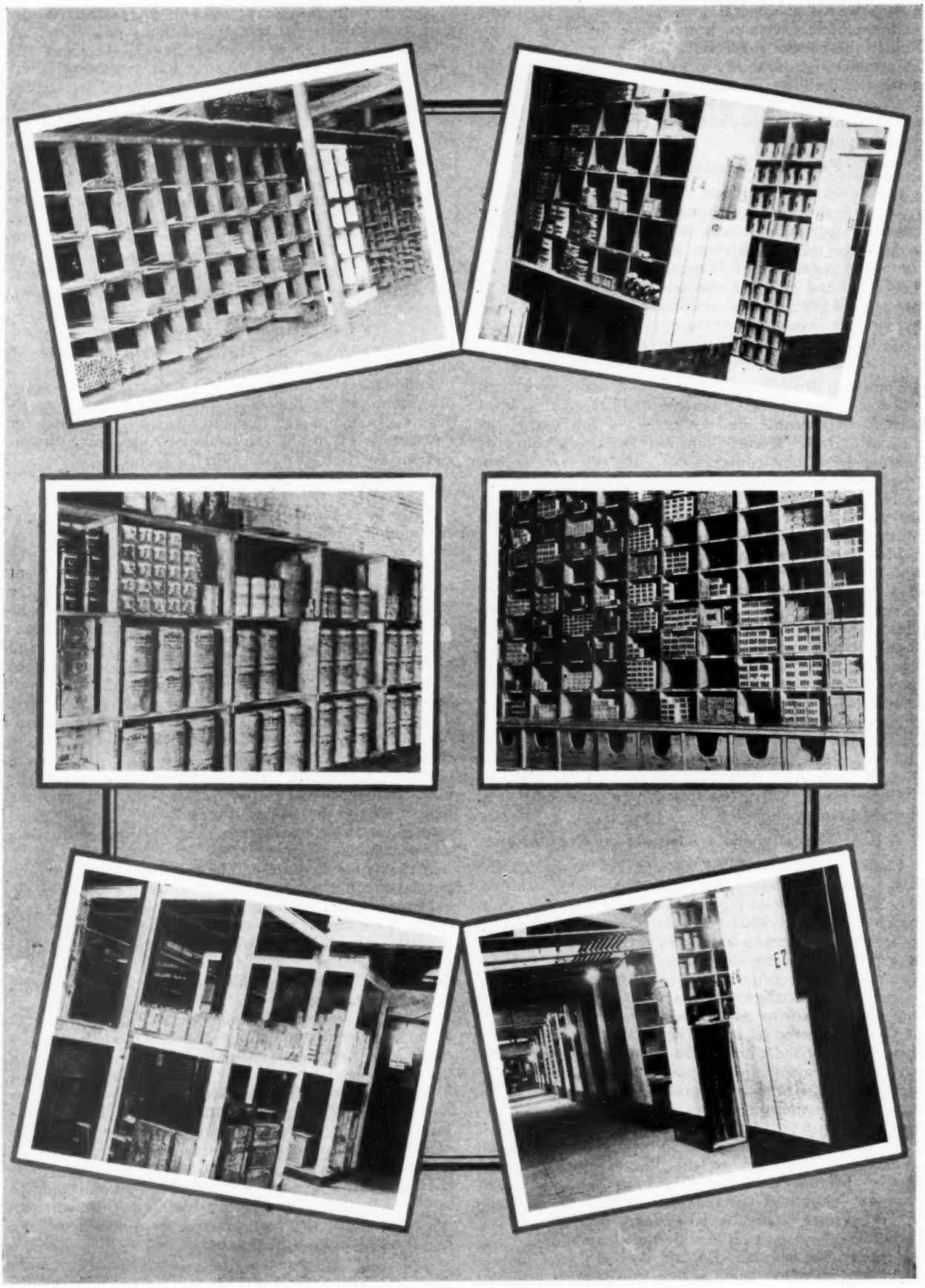
Need for Uniformity in Trailers

After brief remarks by Mr. Loomis of the National Automobile Chamber of Commerce, Mr. Woodruff of the New York Central called attention to two or three things which, in his opinion, worked to the detriment of proper coordination of the automotive industry with the railroad. The first of these he stated to be the lack of interchangeability with respect to automotive equipment, particularly in the field of tractor and trailer operations. The speaker cited the experiences of his road and the difficulties encountered in this connection with the different types of trailers in service. The second factor in Mr. Woodruff's outline of difficulties in the way of co-ordination is the fact that in many instances as soon as the railway has a trucking operation developed, an enterprising salesman prevails upon an independent to purchase a truck and enter the field. Since the railroad must adhere to published rates, it is at a disadvantage in competition with these independents.

Mr. Raymond, representing the Lapeer Trailer Corporation, commented on Mr. Woodruff's remarks regarding interchangeability of trailers and suggested that the trailer manufacturer might be of service in this connection. Here Mr. Maxwell of the Pennsylvania entered the discussion in regard to co-operation in the solution of the legislative problem and mutual trust among the interested parties.

Failing to receive a response when he called for a talk from some representative of the rail motor car interests, Chairman Russell recognized in turn C. S. Lake, of the Chesapeake & Ohio, and F. S. Hobbs of the New York, New Haven & Hartford. Mr. Hobbs called attention to the matter of changes in the laws of the states in which the New England Transportation Company operates and suggested that perhaps manufacturers are not keeping sufficiently in touch with these changes. He suggested that this information should be had by all manufacturers in order that they may not be in the position of selling equipment which can not be operated after it is purchased.

Following the expressions of thanks to the various interests represented and brief closing remarks by Chairman Russell, the meeting was adjourned.



Unit Piling of Materials Results in Order and System

Handling Supplies for Motor Coaches*

Differences from methods used in railway operation described, and ways to overcome problems suggested

By W. S. Stackpole

General Storekeeper, Public Service Co-ordinated Transport, Newark, N. J.

THE handling of supplies for motor coaches and other automotive equipment does not differ in the essentials from handling supplies for railways, but there are enough marked differences between the two to warrant careful study and consideration by those who may have to operate stores of both groups of materials. In handling coach supplies on a large scale we have found that the principal differences are, as follows: Greater emergency demand for materials; larger turnover; more rapid changes in types and models; greater obsolescence; special care required by certain materials; more safeguards for commonly used materials; more experienced class of stores employees; smaller differences between parts; more frequent deliveries to using departments; gasoline and lubricants; more defective material adjustments; care in stocking replacement parts; and tires and tubes.

Greater Emergency Demand for Materials

So many different kinds of materials are required to keep a large fleet of various types of coaches in operation that a company cannot afford to keep in its storerooms all parts and enough parts to meet all demands at once. Yet the required parts and supplies have to be provided if the equipment is to be kept operating, and it becomes necessary to set up an emergency order system whereby an operating garage or shop may be enabled to secure the necessary materials from the nearby service station or dealer as quickly as possible and with the least red tape. Or it may be that the company's storeroom has the required material in stock, but the point where it is required is so far away that it is cheaper to secure it locally and at once than to spend the time and money required to go several miles for it.

It may be asked why such items are not kept on hand at the operating points. Our garages do carry on hand materials for which there is known to be a constant demand, but with automotive equipment, the unexpected frequently happens and it is impossible to foresee all items of materials that may be required in case of trouble. The main storeroom cannot do this, and even the largest and best equipped service stations fall far short of being able to supply any part on emergency demand. To go further, the equipment manufacturer's own service department at its plant is often unable to supply certain parts on short notice, particularly if the equipment has been out several years.

In setting up an emergency order system it should be as simple as possible and able to function quickly. It should be controlled by an emergency order clerk in the main storeroom; one who is familiar with parts and will know what is meant when he hears them called by several different names and descriptions or by various signs made with the hands. He should also be familiar with just where the required materials may be procured and to the best advantage, and to this end should consult and co-operate closely with the purchasing department. No emergency materials should be secured without a purchase order number, or without getting a delivery ticket from the vendor to be turned in to the main store as evidence of receipt of material.

Due to the greater wear and tear and shorter life of automotive equipment, and also to the larger number of moving parts (many of them of a comparatively delicate nature), it has been found that a larger number of items turn over more rapidly than ordinary railway materials. On the other hand, in larger cities it is possible to replenish coach supplies from local service stations and dealers quicker than on the other class of material.

Rapid Changes in Types and Models

In the automotive industry, there is a continual change going on in the types and models of equipment, and this results in greater difficulty in maintaining an adequate stock of materials. It will almost always be found that every lot of vehicles acquired is considerably different, in many details of engine, chassis or body, from the previous ones, resulting in a considerable list of new and additional supplies and parts to be added to stock. Then too, many changes and improvements are often made in existing equipment.

All of these changes and additions require that the storekeeper watch his stock more closely than ever before to see that he does not get loaded up with materials which will no longer be required, and also that he has provided a proper supply of the new items. In the last few years motor coaches have changed from four to six-cylinder, and now it is noticed that eight-cylinder ones are advertised. We also have a change on a large percentage of the equipment from gas-mechanical to gas-electric drive, which exerts a very considerable influence on the kind of materials to be stocked.

Obsolete and replaced kinds of material will pile up very rapidly if great care is not taken. After a type or model of equipment is changed or discarded, it is difficult to find an outlet for the materials in stock for the original equipment. Some of it may be sold to dealers or to other operators, but in general it becomes a dead loss, except for salvage value.

Care of Materials

There are certain kinds of automotive equipment and materials that require special care in storing and with which one may not have had experience. Crankshafts and camshafts cannot be thrown into a bin or even piled neatly on shelves in the usual manner where

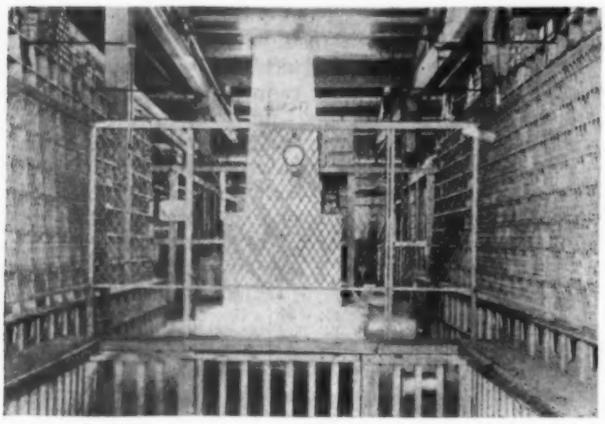
* From a paper presented at the American Electric Railway Engineering Association Convention at Cleveland, Ohio, September 22-28.

care is ordinarily taken to keep materials orderly but they must be laid so that all points of bearing will rest on the shelf, for otherwise they will spring out of true and be rendered unfit for use. Radiator cores cannot be kept on hand for a very long time without deteriorating, owing to the effect of solder and acid on the metal. Small ignition materials must be kept clean and dry, and for this purpose small glass jars with metal tops are excellent. In addition to keeping the materials properly, jars furnish a convenient method

Motor Coach Materials Storeroom Entrance

of storing on shelves and also enable the parts to be seen and identified readily.

It is assumed that those of you who have charge of supplies find it necessary and advisable to keep some of them which are of common use under a separate lock and key. With automotive materials this becomes more necessary than ever and to a greater extent. We keep ignition, carburetor, generator, starter, and vacuum tank parts, as well as lamps, spark plugs, tools and general automobile accessories, in a separately partitioned section under a special lock and key, with one designated man in charge. Some of the items are



Storeroom Shop Delivery Counter

very small and quite expensive, and too good care cannot be taken of them.

Selecting Stock Clerks

A man handling automotive supplies and parts needs to be more familiar with what he has to handle and to know how and where it is to be used, when he is first employed, than is ordinarily the case. There are so many parts and the difference between them is often so slight that it requires considerable experience to handle them correctly. We have found it best to secure men who have had mechanical experience in our shops, or who have worked repairing automobiles in garages or service stations. A great deal of trouble can result from securing and issuing incorrect materials, and it is important that the stock clerks know exactly what is required and also be able to interpret wants properly when they are not made any too clearly.

There are many automotive parts the differences between which are slight. Among such materials are wrist pins and bushings, pistons, piston rings, valves, bolts, nuts, bearings, ignition parts, carburetor parts, etc. In addition to the stock clerk having to know the correct material, it is necessary to supply him with gages, micrometers, catalogues, blue prints, and often to post samples in particular cases. There are often differences in diameters of but a few thousandths of an inch and very small variations occur in lengths, shapes, threads, splines, etc., and it is of extreme importance that care be taken to see that these differences become

Scrap Handling, Sorting and Storage Yard

known, that they are correctly checked in the receiving room, and that they do not become mixed on the shelves.

Gasoline and Lubricants

On a large system there must necessarily be a considerable number of garages and separate filling stations to supply. Whether gasoline and lubricants are delivered to these points by the company's vehicles or deliveries are made direct by the vendor, it is important to see that a system is provided whereby these supplies may be furnished constantly and correctly, and that care is taken in handling and accounting for them.

Our company's vehicles consume many thousands of gallons of gasoline monthly, this item forming a very considerable part of operating expenses, and it is essential that the handling of it be done systematically. It is necessary with us to assign a man to supervise and check this service, to watch out for leaks and irregularities, and to handle all orders and bills and keep receipts and issue records. Where there is large volume it becomes a special branch of stores service and is best handled separately.

In railway operation, the replacement of defective parts is not ordinarily a large or troublesome item. With automotive parts, however, there is considerable replacement, and it is necessary to provide a system to handle such matters expeditiously and without loss. Full data as to mileage, service, age, replacement order numbers, etc., are required by the vendors and manufacturers before allowing credits for defective mater-

ials and arrangements should be made to have this data furnished on all such material sent in to the storeroom from operating points and shops.

The writer does not believe that in any other industry are so many replacement parts made as in the automotive field. Parts other than genuine can be had for numerous items of practically every standard and popular make and type of automobile, truck or coach. Some of them are equal and some superior to the parts furnished by the manufacturer, and it is often advantageous to use them on account of lower cost and better source of supply, but many of them are inferior and it becomes necessary to use extreme care to see that one's stock does not become loaded up with replacement parts that do not give satisfactory service. So many exaggerated claims are made for improved parts and appliances for automotive equipment that no other than genuine should be carried in stock unless they have been thoroughly tried and tested in service and unqualifiedly recommended by the using departments. Samples are frequently different from materials furnished on an order.

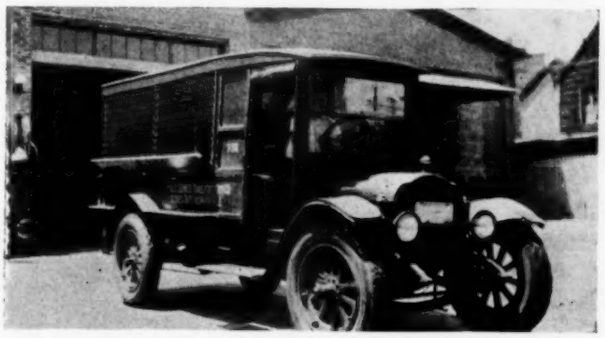
While our company contracts for tire service on coach equipment, it is well known that the handling, storing and issuing of tires and tubes in a company store form an important matter and one that requires special attention and care. The large number of makes and the wide variation in sizes play an important part here as well as with other supplies previously mentioned. and care also has to be taken in the matter of deterioration, replacing defective material, etc.

Classifying Supplies

Before concluding this subject it is desired to call attention to certain methods of grouping and classifying coach supplies for convenient, economical and accessible storing. We have found it quite advantageous to keep certain particular units of all types and models together in groups by separate sections; that is, in one section we keep engine parts for all makes, although each make or type of engine part is in a separate part of the section. Likewise, clutch and transmission parts form one section, drive shaft and rear end another, etc. A separate section is maintained for ignition, electrical, carburetor and vacuum tank parts. We have found this better than trying to keep all parts of one particular make together.

Material Handling and Delivery Equipment

The plan has the effect of making the stock clerk in each section more expert in his particular line of material, rather that that he should have to know intimately all parts of the equipment. The latter knowledge can be secured by transferring the men from one section to the other. If a shop is divided into sections, such as engine, clutch and transmission, rear end, electrical, battery, etc., the plan is of still further benefit as shop employees from a certain section have to deal with a stock clerk handling their kind of material in the store. In other words, the shopman and the stock clerk are more apt to talk the same language, with the result that quicker and better service is possible. In addition to arranging parts as outlined above, there are certain items of materials in these groups that are of such volume and variety that it is advisable to separate them in groups from the other miscellaneous parts and store them in sections or subsections by themselves. This also results in more expeditious and better handling. It is of distinct advantage to keep valves for all types and makes together, and the same is true of pistons, piston rings, wrist pins and bushings, gaskets, roller bearings, annular bearings, shims, brass bushings, lubricant fittings, gas and oil line fittings, brake lining, fender brackets, wheel hubs, axles, axle housings, differential carriers, transmission cases, steering column tubes, crank cases, crankshafts, camshafts and driveshafts.



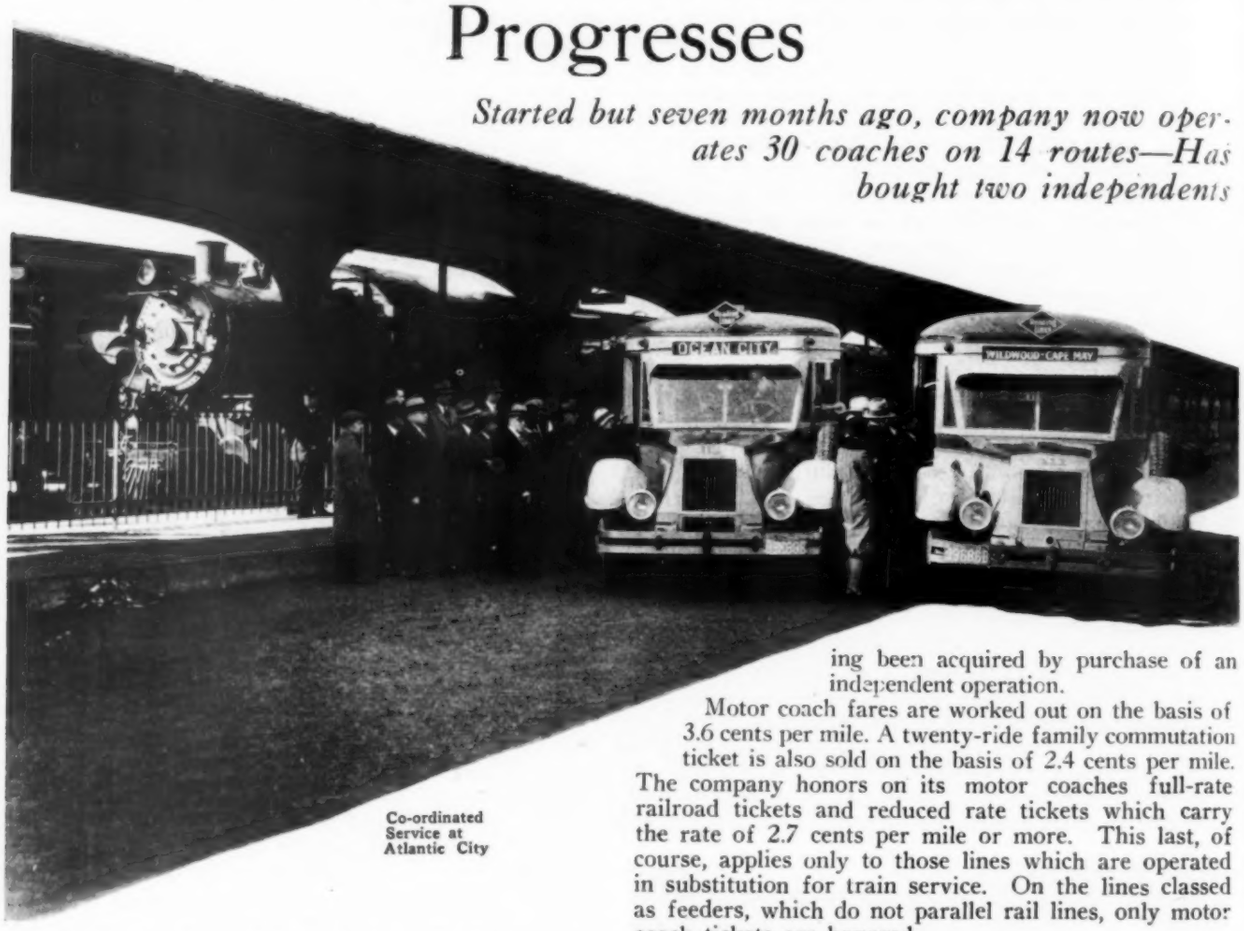
Motor Trucks Are Used in Delivering Supplies

This plan also permits the use of more uniform size bins in each section; that is, piston rings will store without much variation as to size of bin or shelf, whereas if you attempt to place piston rings in the same rack or section of shelves with brake drums or small ignition parts just because they all are a part of one particular make of equipment, you will run into some physical difficulties or else waste a good deal of valuable space.

The foregoing has been prepared with the idea of setting forth some of the differences to be encountered when a railway company embarks on the sea of coach operation. The writer would not recommend setting up a separate store for all coach supplies unless it is necessary on account of location. Rather, it will be to the advantage of all concerned, including stores department employees, to handle all purely automotive supplies in one section in or adjoining the railway store, and then storing materials that are used alike for railway and coach operation together. There are a great many of the latter, such as nails, bolts, nuts, screws, small tools and hardware electrical materials, paints, varnishes, oils, chemicals, lumber, iron and steel, car and coach body parts, general supplies, etc. It will be found to be more economical to follow this plan, both as to cost of stores operation and the amount of money invested in materials and supplies. In other words, co-ordinate the supplies as much as possible.

Reading's Coach Operation Progresses

Started but seven months ago, company now operates 30 coaches on 14 routes—Has bought two independents



Co-ordinated Service at Atlantic City

THE Reading Transportation Company now operates 14 motor coach routes covering a total of 270 route miles. Its average daily coach mileage at the present time is 2,473. Its summer schedules, however, call for additional service totaling 1,640 coach miles daily. From the beginning of operations April 29, to October 31 the company had handled 278,469 passengers.

Of the 14 routes operated, 10 may be classified as service substituted in lieu of discontinued train service, whereas the remaining 4 are feeder routes not entirely paralleling rail lines. On the routes which are operated to take the place of train service, scheduled stops only, at railroad stations or near railroad stations, are made. On the other motor coach lines, however, regular motor coach service, stopping at street corners and similar locations is provided. The motor coach service has enabled the railroad to reduce its annual passenger train mileage by 355,000.

Type of Equipment

The company now has 30 motor coaches, of which 1 is of the parlor type, 5 of the street car type and 24 of the Reading's own design of semi-parlor "Club Coaches". One of the coaches has a four-cylinder motor; all the rest are six-cylinder. High pressure tires are used on 23 and balloon on the remaining 7. Of the 30 coaches, 18 are Macks, 7 are Studebakers, 3 are Pierce-Arrows and 2 are Hahns, the last 5 named having been acquired by purchase of an independent operation.

Motor coach fares are worked out on the basis of 3.6 cents per mile. A twenty-ride family commutation ticket is also sold on the basis of 2.4 cents per mile. The company honors on its motor coaches full-rate railroad tickets and reduced rate tickets which carry the rate of 2.7 cents per mile or more. This last, of course, applies only to those lines which are operated in substitution for train service. On the lines classed as feeders, which do not parallel rail lines, only motor coach tickets are honored.

Handling Cash Collections

The method of handling the cash collections on the motor coaches is not entirely uniform, but the most widely used method is that of having the operator collect the fare when the passenger enters the vehicle, issuing a fare receipt which is collected when the passenger alights. This form is used not only for actual cash fares, but also to cover all railroad tickets honored on the motor coaches but not lifted.

Baggage is handled in the motor coaches subject to space limitations when accompanied by the owner. Most of the coaches are of the Reading's own design and are equipped with parcel racks which can care for most hand baggage. The coaches also handle newspapers on some routes and on two, Carlisle-Gettysburg and Pottstown-Boyerstown, the company also has contracts with the government for handling first class mail matter in locked pouches.

Divisional Organization

For operating purposes the motor coach lines are grouped into divisions as follows:

Atlantic Division: Atlantic City, Ocean City, Wildwood, Cape May, Stone Harbor and Avalon lines.

Montgomery Division: Doylestown-Langhorne, Jenkintown-New Hope, Doylestown-Lansdale, Pottstown-Bally,

Cumberland Division: Carlisle-Shippensburg, Carlisle-Gettysburg.

Schuykill Division: Hamburg-Reading, Pottsville-Lykens, Pottsville-Shenandoah, Milton-West Milton.

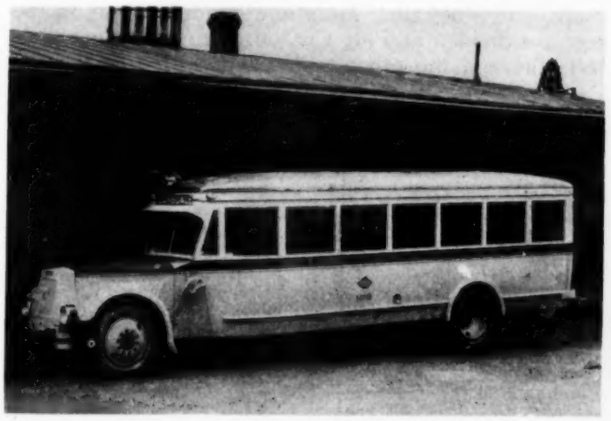
As the map shows, the existing operations are rather widely scattered, making supervision somewhat inconvenient. The office of the superintendent of the Reading Transportation Company in Philadelphia is kept in constant touch with the situation on each division by telephone and telegraph. Each division has at least one supervisor. In some cases the Reading Company's local agent supervises the motor coach operations in addition to his railroad duties. In other cases supervisors are in the exclusive employ of the Transportation Company.

Garaging and Maintenance

On the Atlantic division Ocean City is the headquarters point, servicing of the coaches is handled for this division at this point, space being rented in a public garage, but all work is done by company employees. On this division, also, during the winter months, storage facilities are provided in a public garage at Cape May. Doylestown is the headquarters of the Montgomery division and at this point the company is now erecting its own garage which will not only provide storage space for Montgomery division motor coaches but will also, in all probability, be able to take care of general overhaul and repairs for a large part of the entire system. At this point is located the mechanical supervisor, who not only cares for the local situation but is available for straightening out any mechanical difficulty which may arise anywhere on the system.

At Pottsville the company rents a portion of a building for garage purposes, using its own mechanics. In Hamburg it also has a garage in rented quarters using its own mechanics. In Pottstown arrangements have been made with another highway operator to house and service all of the Reading's motor coaches. At all other points on the system the motor coaches are serviced and housed in public garages.

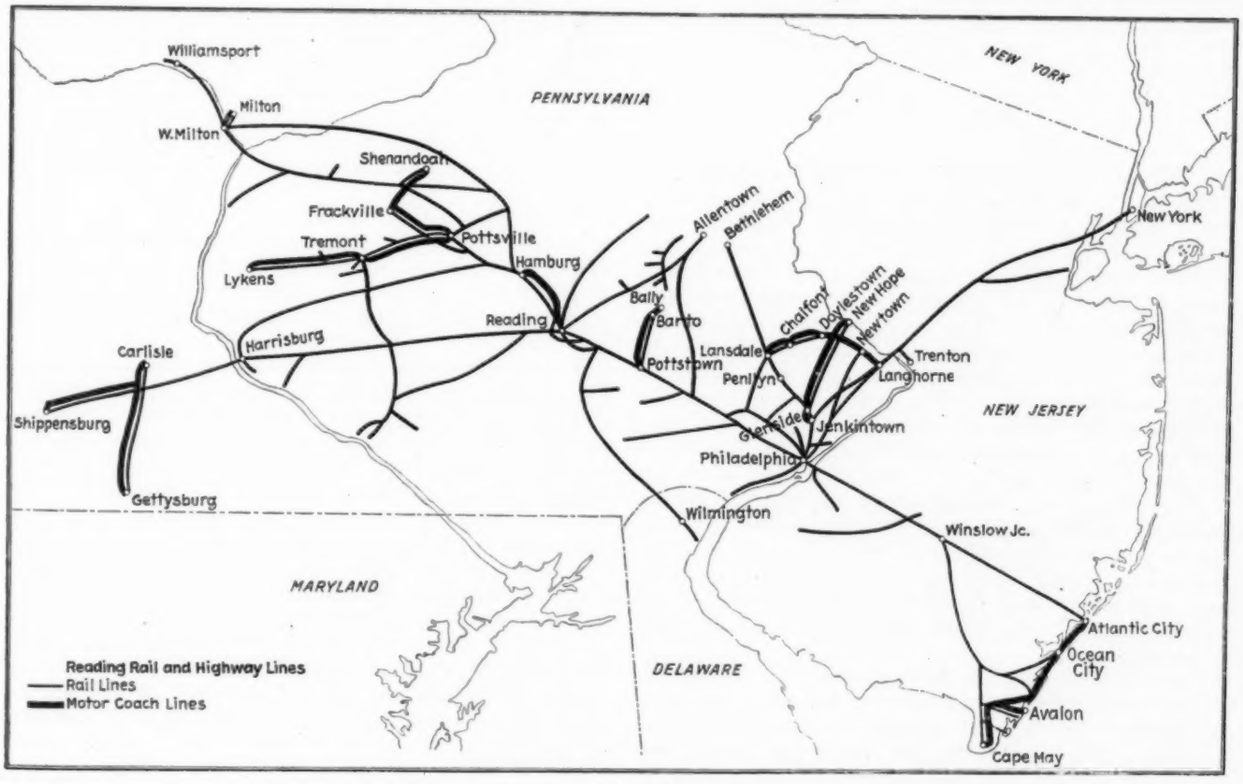
As pointed out in a previous article, (*Motor Transport Section*, April 28, page 1012) the company exercises the greatest care in employing drivers and in training them for their duties. The company has worked out a complete code of operating rules in which drivers are instructed and to which they are required to adhere at all times.



Reading Coach in Philadelphia Suburban Territory

The company employes but one extra driver, but any of its mechanics are qualified to operate motor coaches in case of an emergency.

In Pennsylvania certificates of convenience and necessity are required for special party business as well as for regular routes. The company has some special

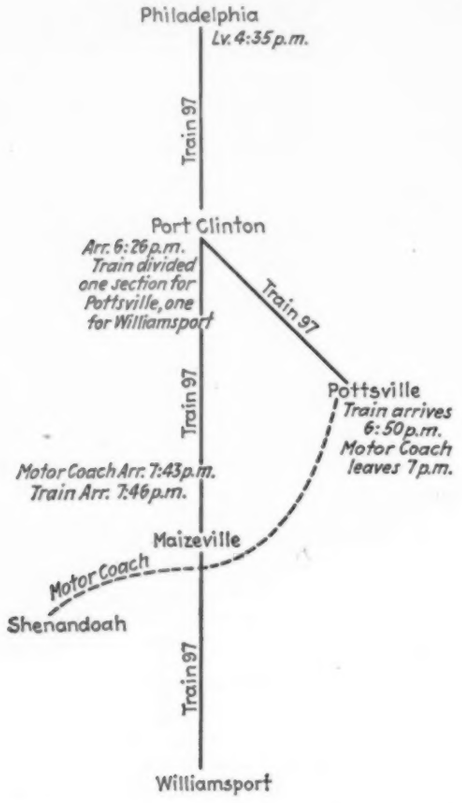


The Reading's Motor Coach Operations in Relation to Its Rail Lines

party privileges and secures some of this business. Applications are pending for additional points of origin now served on regular routes.

An Example of Co-ordinated Service

A striking example of the use of the motor coach in co-ordination with train service is illustrated in an accompanying diagram. Main line Reading trains to the west are divided at Port Clinton, one section going to Pottsville and the other to Williamsport. In the accompanying diagram Train 97, leaving Philadelphia at 4:35 p.m. is chosen as typical. This train arrives at Port Clinton at 6:26 p.m. and is divided into two sections as noted above. The Pottsville section arrives at Pottsville at 6:50 p.m. and a motor coach connection leaves at 7 pm. taking passengers for Shenandoah and intermediate points. This coach makes connection at Maizeville at 7:46 with the Williamsport section of Train 97, giving westbound passengers between Port Clinton and Pottsville (rail) and between Pottsville and Maizeville (motor coach) the benefit of this close connection and expedited service on to Williamsport. The same motor coach, after the departure of Train 97 from Maizeville, continues on to Shenandoah taking passengers which may have boarded the coach at Pottsville or between Pottsville and Maizeville and in addition any of Train 97's passengers (Williamsport section) who are destined for Shenandoah. Eastbound the motor coaches work in similar harmony with train schedules.



The company has encountered several striking instances where motor coach service, taking the place of discontinued trains, has attracted considerable new business. For instance on the Pottsville-Lykens line when the business was handled by rail, there was no night service. The company decided to experiment with the motor coaches by putting on a 10 p.m. westbound schedule out of Pottsville on Saturday—a busy day. From the first day this schedule was operated, four coaches have been required to handle it.

An illustration shows a portion of a public time-table for co-ordinated train and motor coach service. Particular attention is called to the motor coach symbol used to distinguish such schedules from trains, making for ready comprehension by patrons.

COLEBROOKDALE BRANCH

NORTHBOUND

STATIONS	Weekdays									Sundays	
	1 T	3 T	5 T	7 T	7 T	95 T	31 T	37 T	3 T	99 T
Phila. (Rdg. Ter.) Lv.	A M	A M 4.20	A M 8.36	A M 10.30	P M 1•25	P M 1•25	P M 4.05	P M 4.38	P M 9•10	A M 8.36	P M 4.05
Pottstown Ar.		6.00	9.38	11.40	2•33	2•33	5.13	5.57	10•19	9.36	5.13
	601 T	603 T	651 MC	653 MC	655 MC	1607 T	633 T	657 MC	659 MC	671 MC	673 MC
0 Pottstown Lv.	6.15	6.00	9.55	11.40	2•38	2•33	5.16	6.05	10•20	9.55	5.13
0.5 Mill Park "	— —	f6.08				f2•37	f5.18				
1.7 Glasgow "	— —	6.13				2•40	5.21				
Halfway House (M. C. only) "			10.03	11.48	2•43			6.13	10•28	10.03	5.21
3.7 Pine Forge "	— —	6.20				2•44	5.25				
Little Oley (M. C. only) "			10.07	11.52	2•47			6.17	10•32	10.07	5.25
5.4 Iron Stone "	— —	f6.28				f2•49	f5.30				
6.7 Colebrookdale "	— —	6.30	10.09	11.54	2•49	2•52	5.33	6.19	10•34	10.09	5.27
8.5 Boyertown "	6.40	6.41	10.15	12.00	2•55	2•59	5.40	6.25	10•40	10.15	5.33
9.7 New Berlinville "	— —	f6.46	10.19	12.04	2•59	f3•02	f5.43	6.29	10•44	10.19	5.37
11.4 Bechtelsville "	— —	6.57	10.25	12.10	3•05	3•07	5.48	6.35	10•50	10.25	5.43
12.3 Eshbach "	— —	f7.00	10.27		3•07	f3•10	f5.51	6.37	10•52	10.27	5.45
13.0 Barto "	6.51	7.02	10.30		3•10	3•12	5.53	6.40	10•55	10.30	5.48
Bally (M. C. only) Ar.			10.35		3•15			6.45	11•00	10.35	
	A M	A M	A M	P M	P M	P M	P M	P M	P M	A M	P M

Extract from Public Time-Table, Showing Both Train and Motor Coach Schedules

How Many Men Are Needed to Maintain Coaches and Trucks*

By F. C. Horner

Assistant to President, General Motors Corporation

A QUESTIONNAIRE, to determine maintenance man-power requirements of fleet operators, and to determine the cost of maintenance labor and mechanical labor per vehicle per day and per mile of operation, for comparative purposes, was sent to operators in various parts of the country, and 38 replies were received. A summary of these replies follows:

The percentage of annual maintenance cost represented by work done in outside shops ranges from zero to 75 per cent of the total. Of 35 companies, 9 reported no work performed in outside shops; 19 reported less than 5 per cent, and 7 companies over 5 per cent.

The total annual maintenance cost due to accidents (the gross cost of accident repairs, without any deduction for amounts recovered from insurance companies or from other parties, is used), as reported by 28 companies, is 1 per cent or less in the case of 15 companies; between 1 per cent and 5 per cent in the case of 7 companies; and over 5 per cent in the case of 6 companies, ranging up to 22 per cent in one instance.

Non-productive labor cost, such as for clerical help, supervision, stock clerks and the like, ranges from 0.1 per cent to 27 per cent of the total annual maintenance cost, based on the reports of 29 companies. Of these 29 companies, 18 reported less than 10 per cent; 9 between 10 and 20 per cent, and 4 over 20 per cent of their total annual maintenance cost due to non-productive labor.

*From a paper presented at the Society of Automotive Engineers meeting at Newark, N. J., Oct. 16-18.

The average number of men employed for garage service, which includes supplying gasoline, oil and water, routine inspection, tire inflation, adjustment, lubrication and washing, as represented by the average number of vehicles per man, based on reports from 10 motor coach companies operating 1,156 vehicles and employing 290 men, is one man for every four coaches. For motor trucks, 19 companies operating 3,929 vehicles and employing 290 men, average 13.5 vehicles per man.

The average number of coaches per man employed in repair work, as represented by the average number of vehicles per man, based on reports from 10 motor coach companies operating 1,156 vehicles and employing 472 men, is 2.5. For motor trucks, 19 companies operating 3,929 vehicles and employing 584 men average 6.7 vehicles per man.

The following table shows that, for the total number of men employed, including both those in repair work and those assigned to the garage, there are, in the case of 19 companies operating 3,929 motor trucks and employing a total of 584 men, an average of 4.5 vehicles for each man. For motor coaches, 10 companies operating 1,156 coaches and employing a total of 762 men average 1.5 coaches for every man.

	No. Companies	No. Vehicles	No. of Men Repair	No. of Men Garage	Average No Vehicles Per Man, Repair	Average No Vehicles Per Man, Garage	Total Vehicles Per Man, Both Repair and Garage
Motor Coach....	10	1,156	472	290	2.5	4	1.5
Truck	19	3,929	584	290	6.7	13.5	4.5

To the question whether the same crew of men handles both garage and repair maintenance work, only 6 out of 38 companies reporting answered, which implies that in most instances the same crew of men does not handle both the garage and repair maintenance work.

The average number of hours worked per month by employees of the maintenance department, based on the reports of 15 companies operating motor trucks, is 221 and in the case of motor coaches, based on the reports of 13 companies, is 231.

According to the reports of 15 companies operating 3684 motor trucks, 29015 hours per month were charged to cleaning and washing, which is an average of 7.9 hours per month charged to each vehicle. For motor coaches, 11 companies operating 1,320 vehicles reported a total of 22,212 hours per month charged to the washing and cleaning of vehicles, or an average of 16.8 hours per month per vehicle.

Seasonal Variations

Seasonal variation as a factor affecting the number of maintenance men employed during the year is not of very great importance, as shown by the reports of 17 companies operating motor trucks. The maximum number of men employed by these 17 companies totals 670, while the minimum totals 640 men, or a difference of only 30 between the maximum and minimum number of men employed throughout the year. Six companies reported no variation at all. Only nine companies reported the month in which the maximum number of men is employed. Of these, seven reported that the maximum was reached during the winter months, and two during the summer.

As to motor coach operation, 10 companies reported a total of 575 as the maximum number of employees during the year and a minimum total of 413, a difference of 262, or 46 per cent. Out of nine companies reporting the months in which the maximum number of men are employed, five reported during the winter months of December, January and February, and four companies during the summer months of June, July and August. Three companies reported no variation throughout the year.

Motor Transport News

WITH THE OPENING, DURING SEPTEMBER, OF FOUR NEW HIGHWAY ROUTES, totaling 152 miles, the South African Railways now has motor coaches in operation over 8,149 route miles. It is also planned to inaugurate highway services over 2,162 additional route miles, which routes have recently been authorized.

S. P. Establishes 775-Mile Line

Through motor coach service between San Francisco, Cal., and Portland, Ore., a distance of approximately 775 miles, was established by the Southern Pacific Motor Transport Company on November 18. One round trip is being made daily.

Lower Fares Successful on U. P. Stages

The rate of 2.5 cents per mile for passengers, established by the Union Pacific Stages, subsidiary of the Oregon-Washington Railroad & Navigation Company, on its motor coaches operating between Portland, Ore., and Pendleton, will be maintained, according to W. K. Cundiff, general passenger agent. The rate of fare was reduced from 3.25 cents per mile as an experiment last August. Since that time, traffic on the motor coaches has increased 93 per cent as compared with the same months of 1927, and passenger revenue has increased 26 per cent.

English Railway Inaugurates Co-Ordinated Passenger Service

The Great Western of England, on October 29, inaugurated its first operation under the new highway powers, recently granted by Parliament to English railways, when it established a co-ordinated motor coach and train service between Cheltenham and Paddington. The highway section of the route is between Cheltenham and Oxford, so the journey will involve this motor coach run of 40 miles. Rail service will be provided between Oxford and Paddington.

Schedules provide for four week-day round-trips and two on Sundays. Six-cylinder motor coaches with all-weather bodies will be used and will operate between existing railway stations of the Great Western at Cheltenham and Paddington with no intermediate stops.

S. P. to Replace 20 Trains With Coaches

Permission has been granted the Southern Pacific by the California Railroad Commission to substitute motor coach service, operated by the Southern Pacific Motor Transport Company, for 20 trains in the vicinity of Santa Cruz, Cal., and Monterey. The coach service would replace six trains between Santa Cruz and Watsonville Junction; two trains between Santa Cruz and Davenport; six trains between Del Monte and Pacific Grove; and six trains between Del Monte Junction and Salinas. Independent coach lines in the vicinity have petitioned the commission for a rehearing. In the event that this petition is denied, it is expected that an appeal will be carried to the state Supreme Court.

Pacific Electric to Furnish Pick-Up and Delivery Freight Service

The Pacific Electric Railway, subsidiary of the Southern Pacific and for some time a large operator of motor coaches, is entering the field of motor truck transportation. A subsidiary, the Pacific Electric Motor Transport Company, was incorporated on October 12. Its purpose will be to own and operate motor trucks to carry on the business of transporting freight, express and other commodities by motor truck and otherwise, and to conduct a general receiving, forwarding and warehousing business. Officers of the company have not yet been elected, nor has a definite date been set for the beginning of the company's operations.

In commenting on the organization of the motor transport company, D. W. Pontius, vice-president and general manager of the Pacific Electric, made the following statement:

Motor trucks, like motor coaches to passenger business, have a definite place in the freight transportation field. One function is to act as feeders to rail lines, and to perform a service between rail stations and the shipper's place of business. To meet these needs the Pacific Electric Motor Transport Company, a subsidiary of the Pacific Electric Railway, is being organized, providing through the use of motor trucks in co-ordination with the rail lines of the Pacific Electric Railway, a thoroughly complete transportation service, including "store-door pick-up and delivery," in Southern California.

The new company will be, in its general character, an express company. It does not contemplate, for the present at least, the operation of trucks on the highways. Briefly the plan of operation is this:

The Pacific Electric Motor Transport Company will perform a complete service from shipper's store door to consignee's store door under a through rate that will cover the entire service. The motor transport company's trucks will pick up shipments at the shipper's door and haul them to the Pacific Electric Railway's rail stations where they will be transferred to rail cars.

Under a contractual arrangement the Pacific Electric Railway will make the line haul to the station of destination, where the load will again be transferred to the motor transport company's trucks for delivery to the consignee's place of business. The transfer between motor truck and rail cars may be effected either by transferring the entire truck body intact from the truck chassis to specially equipped rail cars, as in the case of bulk freight, or by the usual method of handling between truck and rail car, as in the case of miscellaneous package freight.

The outstanding merit of the entire plan is that by co-ordination with motor truck operations it creates a greater and more efficient use for both motor truck and railway facilities that already are in existence or available.

Orders for Equipment

The Union Pacific has ordered one 28-passenger parlor coach from the American Car & Foundry Motors Company.

The Northland Transportation Company has accepted delivery of two Model-54 6-cylinder White motor coaches.

The LaCrosse & Southwestern Transportation Company has received a 12-passenger Reo motor coach mounted with a Fitzjohn parlor type body.

The Spokane, Portland & Seattle Transportation Company has received three semi-parlor type Fageol motor coaches of 30 passenger capacity each.

The New England Transportation Company has ordered an A. C. F. 29-passenger, parlor observation type motor coach from the American Car & Foundry Motors Company.

The Reading Transportation Company has ordered three 21-passenger city-type motor coaches from the Studebaker Corporation.

The Southern Pacific Motor Transport Company has ordered two Type-W parlor motor coaches from the General Motors Truck Company, Pontiac, Mich.

The Southwestern Transportation Company, newly organized subsidiary of the St. Louis Southwestern, has placed its first order for equipment. It is for eight Model-54, six-cylinder motor coaches from the White Company, Cleveland, Ohio. These coaches will be equipped with parlor-type bodies built by the Bender Body Company, Cleveland.

The Southern Pacific Motor Transport Company has ordered a 27-passenger parlor type motor coach from the American Car & Foundry Motors Company, and two 21-passenger motor coaches, with Fitzjohn bodies, from the Reo Motor Car Company. It has also accepted delivery of three 22-passenger Studebaker motor coaches of the observation type, one Model-54, 6-cylinder White motor coach and five semi-parlor type Fageol motor coaches of 22-passenger capacity.

Among the Manufacturers

Walter G. Schmunk, vice-president and treasurer of the Brown Body Corporation, Cleveland, Ohio, has resigned.

Frank H. Espenhain has been elected executive vice-president of the **Fisk Tire & Rubber Company,** New York. Mr. Espenhain was formerly associated with the Goodyear Tire & Rubber Company in the Sales department.

The Trailer Company of America has been organized as a holding company and has acquired a controlling interest in the **Lapeer Trailer Corporation,** Lapeer, Mich., and the **Trailmobile Company,** Cincinnati, Ohio. These two companies will be operated separately, continuing to manufacture their respective models of trailers and parts. **J. Englaender,** president of the Lapeer Trailer Corporation, will serve as president of both the Lapeer and Trailmobile companies, and **S. B. Winn** will be vice-president and general manager of both companies. The officers of the Trailer Company of America are: President, **L. W. Childress;** vice-president, **F. H. Simpson;** and secretary and treasurer, **A. J. Woltering.**

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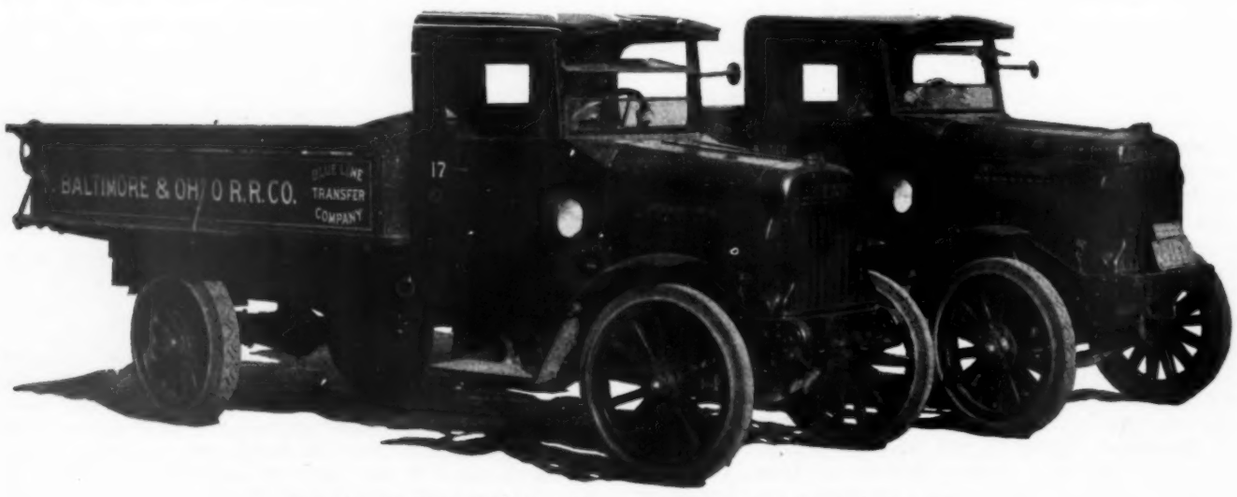

Two of the Fleet of Trucks Operated by the B. & O. at Baltimore